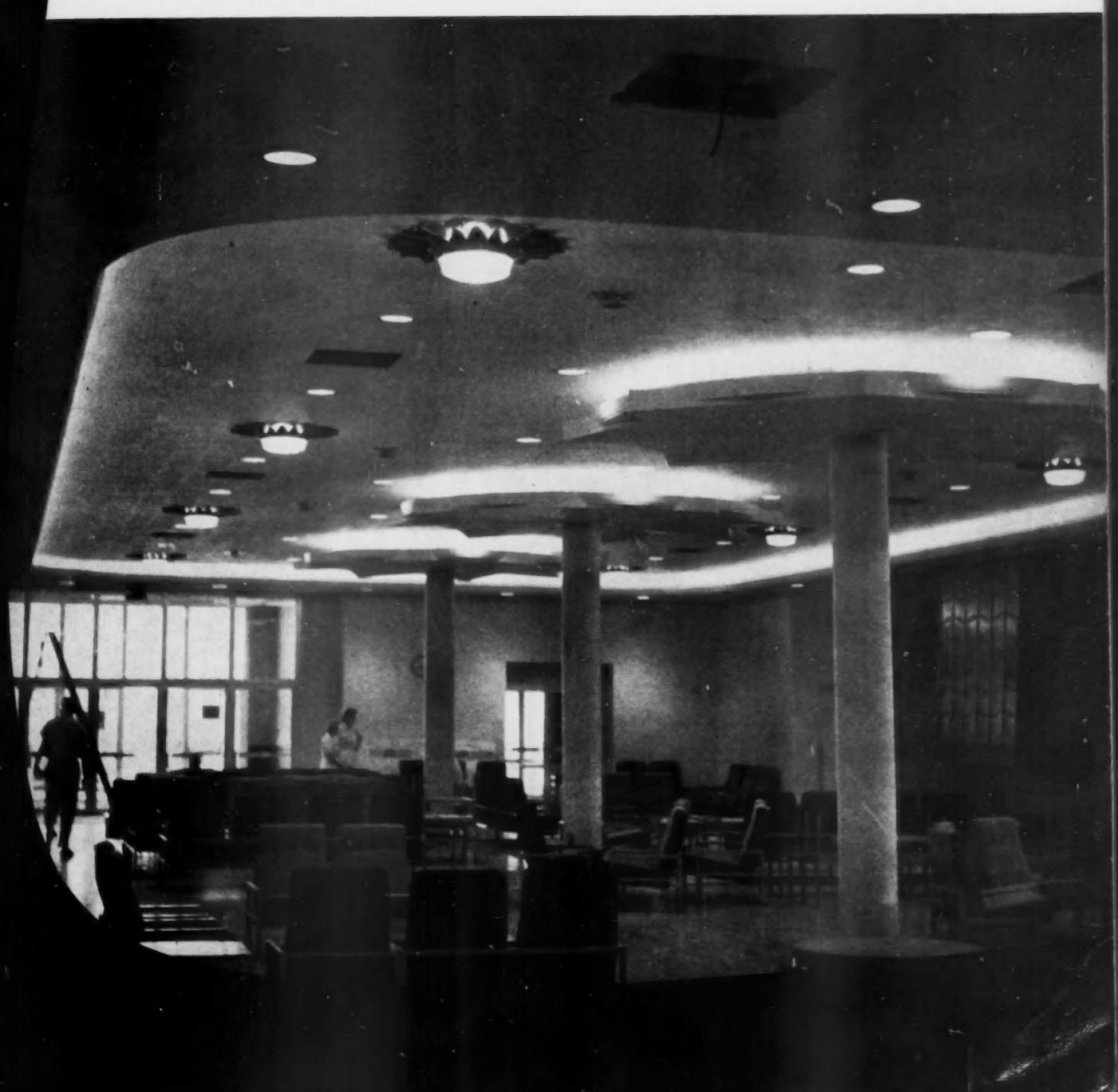


January 1961

Lighting

COMMERCIAL — INDUSTRIAL — INSTITUTIONAL — OUTDOOR — RESIDENTIAL

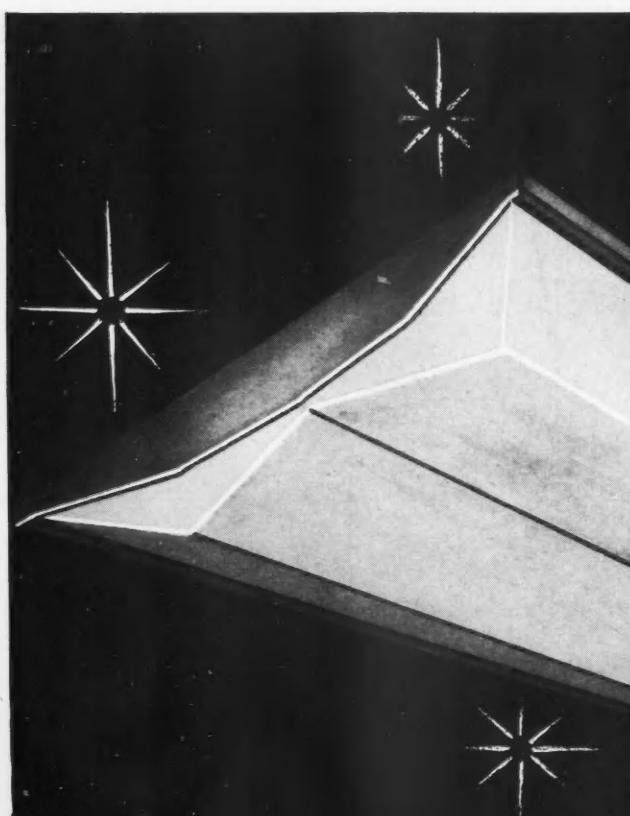
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Meet.....THE

STARGLOW

by modern



MEET . . . THE "STARGLOW"

A DISTINCTIVE NEW FLUORESCENT FIXTURE DEVISED TO FILL THE NEED FOR AN ULTRA-LOW PROFILE, RUGGED YET BEAUTIFULLY STYLED UNIT. INTERIOR DESIGNERS AND ARCHITECTS WILL FIND THE TIMELESS SYMMETRY OF LINE AND PROPORTION A HANDSOME COMPLEMENT TO TASTEFUL DECOR AND STRUCTURE WHETHER PERIOD OR MODERN.

LIGHTING ENGINEERS WILL FIND THE EMPLOYED PRINCIPLE OF LARGE AREA - LOW BRIGHTNESS GIVES UNPARALLELED ILLUMINATION QUALITY DESPITE THE MOST DIFFICULT FACTORS.

THE STARGLOW HAS BEEN CLEVERLY CONCEIVED TO GIVE EVERY APPEARANCE OF BEING RECESSED WHILE ACTUALLY SURFACE MOUNTED EITHER SINGLY OR IN LINE WITH NO NEED OF ADAPTERS TO JOIN UNITS. IT IS THE FIRST LUMINAIRE EVER BUILT TO FULLY ELIMINATE END PLATE SHADOWS.

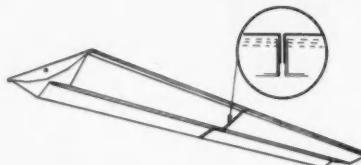
A ONE PIECE POLYSTYRENE DIFFUSER PROVIDES UNMATCHED GLARELESS DIFFUSED LIGHT. SEAMLESS AND FULLY SEALED THE DIFFUSER PROVIDES NO PURCHASE FOR DUST AND DIRT THUS MINIMIZING LIGHT LOSS.

THE ALL WELDED STRUCTURE AND HIGH QUALITY ENAMELED FINISH ASSURE A LONG SERVICEABLE LIFE AT AN EXPENSE LEVEL COMPATIBLE WITH THE MOST MODEST LIGHTING BUDGET.

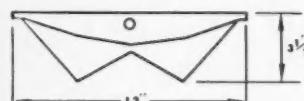
BUT DESCRIPTIONS ARE HARDLY ADEQUATE: YOU SHOULD SEE THE FIXTURE ITSELF. SAMPLES AVAILABLE AT USER'S COST OF

\$18.95

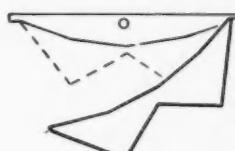
ATTRACTIVE TERRITORIES AVAILABLE FOR QUALIFIED MANUFACTURER'S REPRESENTATIVES



END PLATE CONSTRUCTION PROVIDES VIRTUALLY UNBROKEN ROWS OF GLOWING ILLUMINATION



OVERALL SIZE SHOWS COMPACTNESS AND RECESSED APPEARANCE OF UNIT.



USES TWO RAPID START LAMPS
Catalog No. 23 U4-R2K4

HINGED FROM EITHER SIDE PROVIDES EASY ACCESSIBILITY FOR INSTALLATION OR MAINTENANCE.

MODERN LIGHT COMPANY OF ST. LOUIS
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Gentlemen:

- Please send sample of Fixture at user's price.
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Position _____
City _____ Zone _____ State _____

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CAPRI *One of a series of 24 intricately wrought
painstakingly antiqued chandeliers, pendants, wall sconces and hall baskets.
Profits assured by a compelling month after month national advertising program
designed to bring to your showroom the professional buyer again and again.*

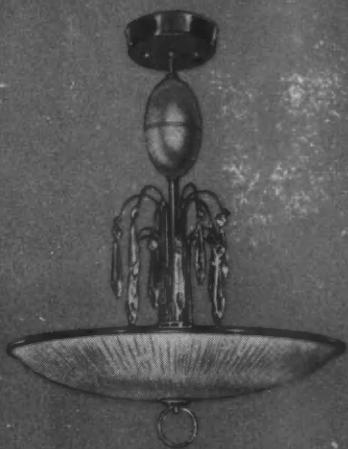
GLOBE LIGHTING PRODUCTS, INC. 1710 Flushing Avenue, Brooklyn 37, N. Y.

THERE
IS A
DIFFERENCE

Del-Val

DEL-VAL

DELIVERS
VALUE



*1770

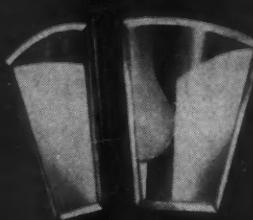
Profit seeking distributors are invited to write now for the upcoming 1961 Del-Val catalog of more than 200 distinctive lighting fixtures for every interior and exterior home use. Del-Val's modern automated facilities, exclusive machinery and precision engineering make it the quality line that combines the most saleable features of color, fashion and practicality with reliability to deliver and prices that forge you ahead of your competition.

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COMPANY
519 W. HUNTINGDON ST., PHILA. 33, PA.

THERE
IS A
DIFFERENCE

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DELIVERS
VALUE



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Profit seeking distributors are invited to write now for the upcoming 1961 Del-Val catalog of more than 200 distinctive lighting fixtures for every interior and exterior home use. Del-Val's modern automated facilities, exclusive machinery and precision engineering make it the quality line that combines the most saleable features of color, fashion and practicality with reliability to deliver and prices that forge you ahead of your competition.

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MEMO

To the Reader
From the Publisher

Effective with this issue, LIGHTING's circulation has been increased to more than 16,000 copies.

To our many regular subscribers, we express our sincere appreciation for your continued interest. We have just completed format changes to make LIGHTING easier to read; we have broadened its coverage of lighting technical developments and trade activities; and we shall continue our efforts to make LIGHTING an indispensable aid to the industry.

We wish especially, at this time, to greet our many new readers, chosen from among leading electrical contractors, lighting fixture dealers, electrical equipment and supply wholesalers, lighting design consultants including architects and engineers, electric utility lighting promotion personnel, and lighting equipment manufacturers.

Our competent editorial staff each month will provide you with comprehensive coverage of the most important trends in lighting: technical developments; practical articles on installations; discussions of trade problems; sales training and promotion programs; and timely news of lighting activities and new products.

We hope that you will make use of our several reader services, and that you will call upon us when we can serve you in some special way through our technical consultants and marketing experts. Of course, we will always welcome your comment and suggestions.

Richard P. Smith
President
W. R. C. Smith Publishing Co.

LANTERN FLAIR FROM ARTOLIER

A 5 point promotion package to sell more lanterns in '61...featuring an exciting new Artolier booklet, "35 DRAMATIC WAYS TO DECORATE WITH LANTERNS."

FLAIR #1 Colorful New

New uses for lanterns sell more lanterns. This new booklet was written for Artolier by successful decorator Lee Poll, and describes, illus-



Booklet That Sells

trates and explains many new uses for lanterns—indoors and out.

FLAIR #2 Big New

House Beautiful is the magazine where millions of decor conscious readers will see these informative Artolier adver-



Ad Campaign

tisements... readers who will write for the new Artolier booklet and for the names of their nearest Artolier distributors.

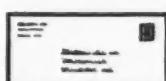


Display

sell in your showroom.

FLAIR #3 Point of Sale

Counter cards for distributor showrooms... silent salesmen that offer a booklet to help



Campaign

FLAIR #4 Direct Mail

Giving Artolier's sale-making booklet the widest possible distribution. Thousands will receive copies of "35 Ways To Decorate With Lanterns" together with the names of their nearest Artolier showroom.

FLAIR #5 Beautiful Artolier Lanterns To Sell

The finest, biggest advertising campaign needs fine products. And Artolier makes them... beautiful, hand-crafted lanterns for every home.



Extra Added Attraction for Distributor Showrooms

Artolier's beautiful new Distributor booklet in a permanent counter size.



1961 IS THE BIG YEAR...

Lantern Flair from Artolier will boost demand for Artolier Lanterns. Place your orders now!

Artolier is the largest national advertiser of lanterns... constantly pre-selling your customers.

ARTOLIER

Where quality and design show the way **GARFIELD, N. J.**

IN THIS ISSUE

An economical maintenance system has been used in the Washington Water Power Company building in Spokane to take care of its 10,000 fluorescent lamps. **Page 22.**

Two industry sections of the NEMA Lighting Equipment Division plan promotional programs for 1961 which will total \$133,750. **Page 25.**

An attractive display center for home lighting has been opened in Chicago by a 42-year old firm. **Page 26.**

One of the most modern and largest research centers in the machine tool industry has been built in Ohio by Warner and Swasey. **Page 28.**

Quality lighting including illuminated ceilings, shadow-free lighting for public areas, and wiring for a large office presented a problem in Little Rock's new Police and Courts Building. **Page 30.**

Progress and persistence are often needed to help a customer decide on proper lighting. Such is the case with the Ashland Vocational School, Wis. **Page 34.**

The new Student Union Building at the University of New Mexico has a lighting system that is both functional and attractive. **Page 38.**

Architect Wilbur Riddle has some ideas about using luminous panels to give illusions of space. **Page 42.**

Kansas Gas and Electric Company is promoting "Re-lighter," a three-month campaign to relight stores, schools, and offices. **Page 44.**

Exterior illumination at New Jersey's new Garden State Plaza shopping center is controlled by a pair of tubeless controls weighing less than two ounces each. **Page 48.**



▼ Manufacturer sales of home lighting fixtures dropped 10.6 per cent in October, compared to the same month last year, according to a survey of nine reporting companies made by the American Home Lighting Institute of Chicago.

▼ A new FHA field order promises to provide the long-sought answer to a problem long plaguing the agency, builders, and manufacturers—how can market acceptance of new products and building methods be determined in advance? It proposes, to the extent feasible, that builders be encouraged to offer new equipment or installations as optional features.

▼ Strikes will be fewer in the coming year, say Labor Department experts. They base this on two things. One is softening business, which makes workers unwilling to risk jobs. The other is the General Electric contract—a union set-back.

▼ According to the Electrical Testing Laboratories' report on certified ballast sales, the number sold in the first eight months of 1960 has increased 8.4 per cent over the number sold during the similar period of 1959.

▼ Sharp gains in contracts for commercial buildings and highways boosted total construction contracts in October to a new all-time record for the month, according to F. W. Dodge Corp. Totals were six per cent above October 1959.

▼ As measured by gross national product, the total volume of business eased very slightly in the third quarter. Cessation of inventory accumulation accounted for this small decline.

▼ National Electrical Week will be observed in 1961 from February 5 to 12. The purpose of NEW is to enhance public appreciation of electricity and the contributions of the electrical industry to the nation's progress and economy.

▼ Publicity to pave the way for greater sales to the important rural market appeared in a double-page spread in the November issue of *Successful Farming*.

▼ An editorial and advertising kit has been prepared for the Home Improvement Council by *House Beautiful* magazine as a service to the industry. It is the first in a semi-annual series. It has been distributed to more than 1,000 newspapers, all HIC members, and thousands of local businesses.

From Coast to Coast . . . everybody is specifying



Perry Mason's Office — *The Perry Mason Show*



Dining Room — *The Pete & Gladys Show*



Lake Pointe Inn — Detroit, Michigan



Big Boy Restaurant — Port Huron, Michigan

Architects choose EJS lighting fixtures for their most beautiful installations — Homes • Motels • Churches • Offices • Dining Rooms • Shops.

Home Decorators select EJS lighting fixtures to set off modern . . . contemporary . . . traditional . . . transitional decor in Hotels • Residences • Apartments.

TV Art Directors insist on EJS lighting fixtures for permanent sets and special effects. See EJS screen credits on PETE & GLADYS (CBS-TV) • PERRY MASON (CBS-TV) • and many others.

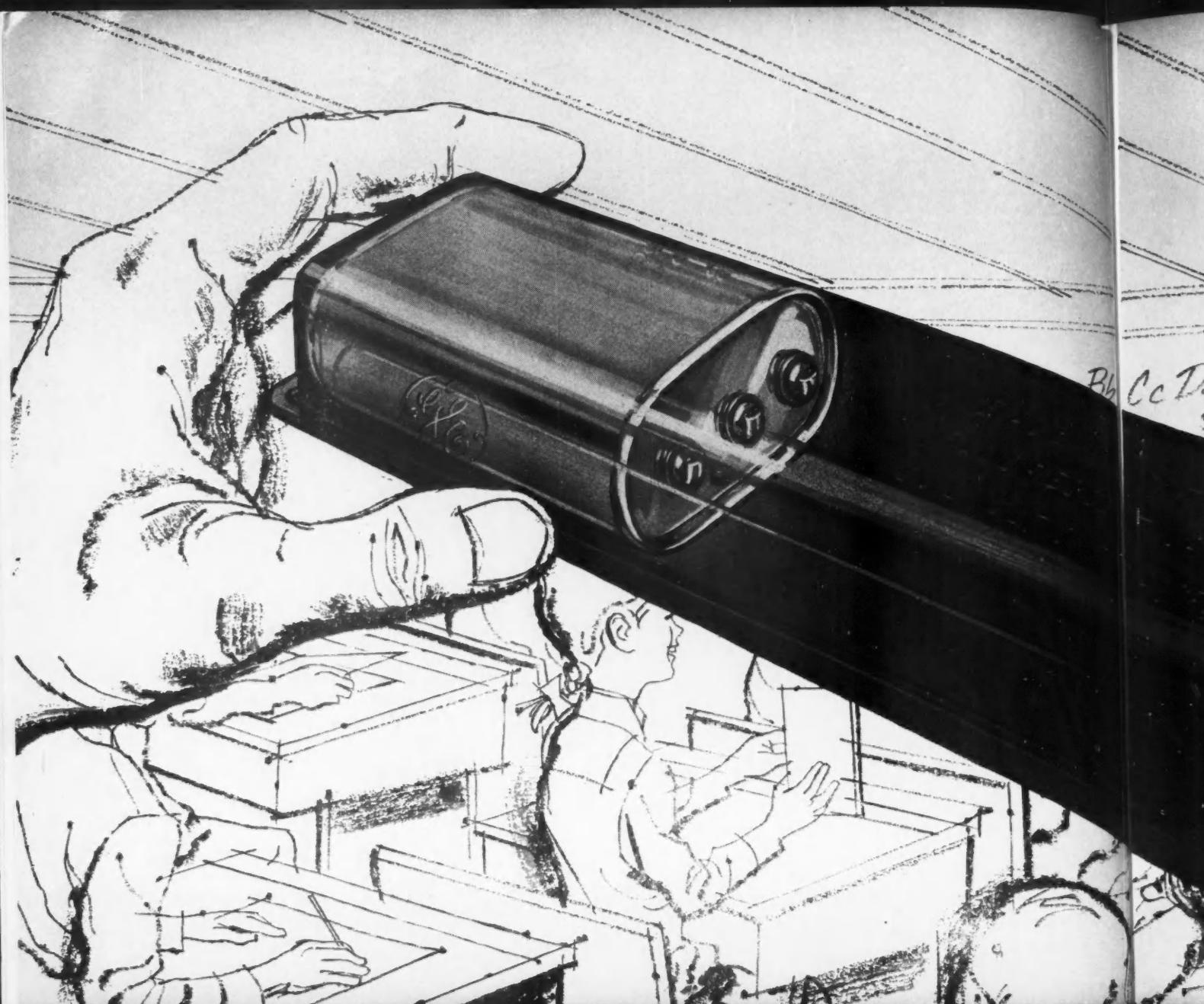
Distributors! For the latest information on the finest in fixtures—write for our new EJS compact catalog.



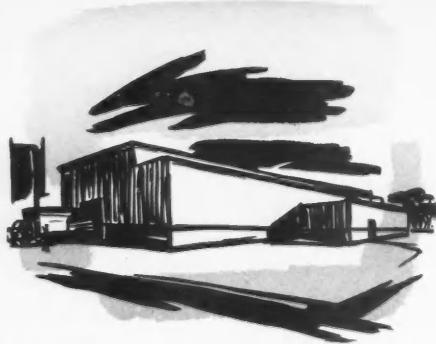
Union Made by I.B.E.W. U.L. Approved

EJS LIGHTING CORPORATION

921 E. Pico Blvd., Los Angeles 21, Calif. / Chicago Warehouse:
2719 No. California Ave., Chicago 47, Ill., Dickens 2-6613
Philadelphia Warehouse: 309-11 Arch St., Philadelphia 6, Pa.,
Market 7-0427.



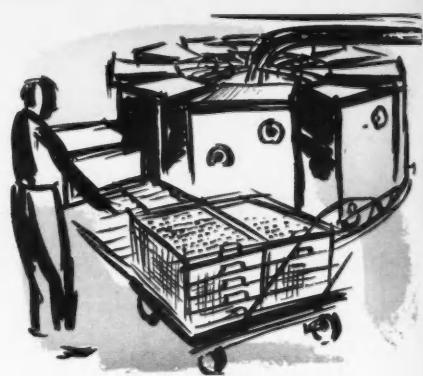
FOUR REASONS WHY GENERAL ELECTRIC CAPACITORS ARE YOUR BEST BUY



CONSTANT IMPROVEMENT. General Electric constantly seeks new ways of making better capacitors. For example, a \$2,000,000 foil rolling mill will be completed in 1961 for the production of special high-quality aluminum foil for smaller, higher quality capacitors.

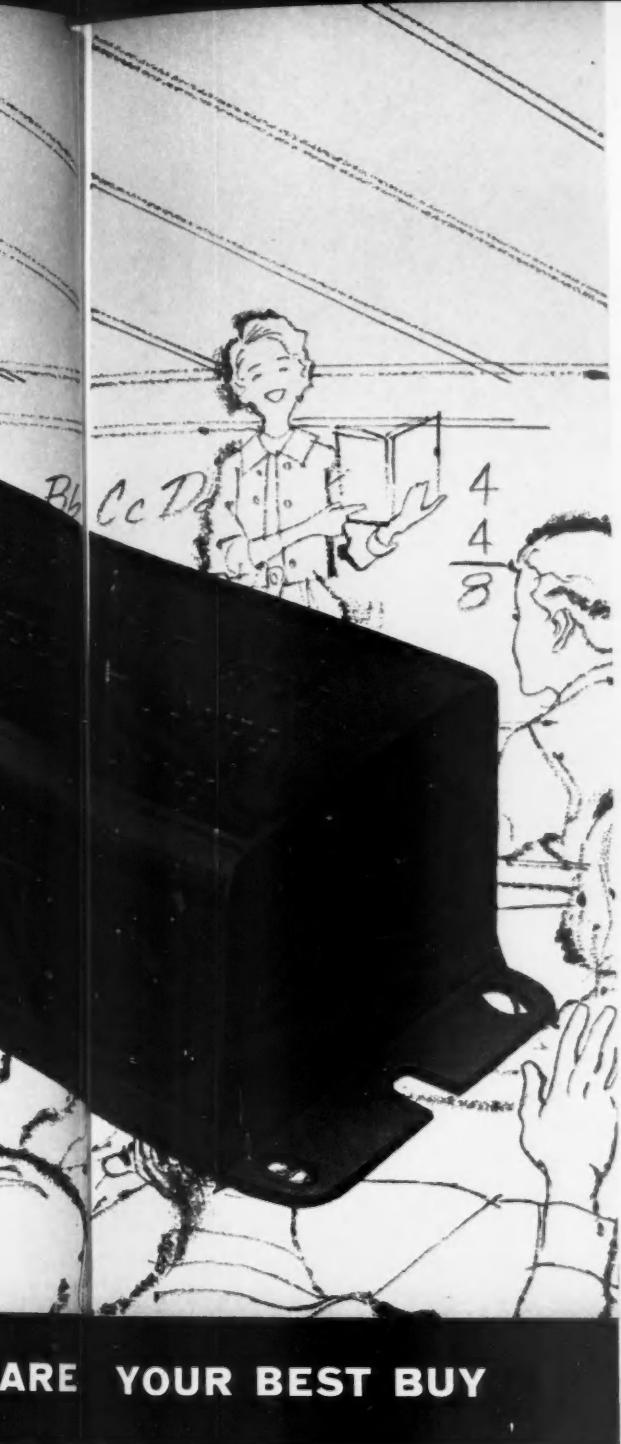


MANUFACTURING ECONOMY. Highly-mechanized* production line permits high-quality, precision manufacturing rapidly and economically. Speed and careful quality control combine to assure long capacitor life and reliable performance at cost savings to you.

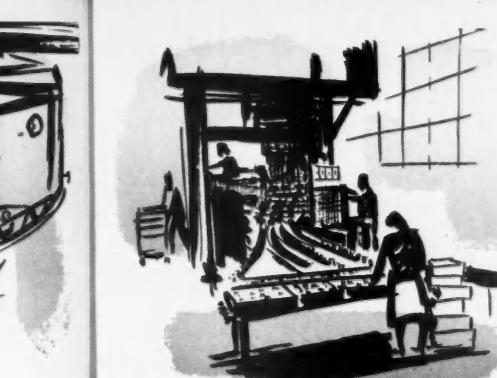


UNIFORM HIGH QUALITY is maintained throughout the production cycle. For example, a unique "merry-go-round" of ovens automatically performs vital heat-treating function rapidly and economically. Uniformly high quality results from careful control.

FOOL
only c
are de
built
matic
ways,
one of



ARE YOUR BEST BUY



main-
n cycle.
round"
is vital
y and
quality

FOOLPROOF TESTING assures that only capacitors meeting rigid standards are delivered to customer. This custom-built electrical testing machine automatically checks out each capacitor six ways, color codes and sorts each into one of four tolerance ranges.

General Electric Capacitors

FOR ASSURANCE OF BALLAST QUALITY

Quality ballasts require quality capacitors. General Electric capacitors give you highest quality economically . . . years of **trouble-free operation**. That's because G-E capacitors are made to the most **exacting standards**, and thoroughly tested, to assure that every G-E capacitor you buy does exactly what it's designed to do. And you can depend on the **test-assured quality** of General Electric capacitors.

TRIPLE ASSURANCE. Every G-E capacitor you buy assures you of better ballast service in three ways: 1) Continuing product improvement, through continuing component materials developments, assures you of the highest value for your capacitor dollar. 2) G.E.'s high-speed, highly-mechanized production facilities provide unequalled delivery capability—assuring you of uninterrupted production continuity on your assembly line. 3) Automated processing and testing equipment assure you of capacitors consistently at the highest quality levels for your ballasts.

FOR MORE INFORMATION on how you can use General Electric's complete line of ballast type capacitors for better ballast service, contact your nearest G.E. Sales Office or write General Electric Company, Section 448-08, Schenectady 5, New York.

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GENERAL  **ELECTRIC**

ONE OF THE WORLD'S MAJOR SOURCES OF ILLUMINATING GLASS



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LIMBURG / LAHN • WESTERN GERMANY

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4-3-2-1-BLAST OFF! GET INTO ORBIT FOR PROFITS!

It's STARlight's gigantic

galaxy of stars

Introducing

STAR LIGHT'S NEW 1961 CATALOG!

FEATURING THE STUNNING NEW LINE OF STAR LIGHT FIXTURES

Star Light's illustrious 1961 line has the scope, style and price-appeal you want for big profits! Fixtures for every use indoors and outdoors. Fixtures you can *promote* against all competition. Shown in full color in the new STAR LIGHT catalog . . . your most power-packed sales tool . . . ready to sell for you now. Send for your copy today.



SPECIAL TIE-IN PROMOTION

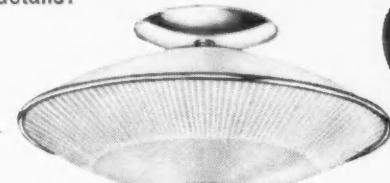
FEATURING 4 SENSATIONAL TOP PROFIT FIXTURES AT SPECIAL SALE PRICES

Specially picked, *Specially* priced to keep your cash register red hot with action! Time is here for you to act. Send the coupon now for details!



SL-138 BEDROOM FIXTURE

White bent glass square with stylized pine tree decoration in gold bead. 14" square, 5" deep. Polished brass knob.



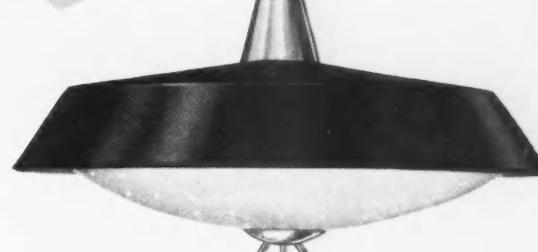
SL-421 KITCHEN FIXTURE

Contemporary style for kitchen, bath, recreation or family room. White metal shade, white ceramic glass. Polished chrome connecting ring. Diameter 15"; depth 7 1/4".



SL-712-7 WALL BRACKET

Distinctive fixture of clear fluted crystal. Elegance outdoors or in . . . Height 9 1/4"; extends 6 1/4". Lustrous black with polished brass trim.



SL-960 PULL-DOWN

Smart contemporary shade with top perforations. White ceramic diffuser with clear glass dots. Diameter 13". Pulls down from 12" to 48". Satin Brass Finish.

SPECIAL RETAIL PRICE

\$295

(regularly \$3.77)

SPECIAL RETAIL PRICE

\$895

(regularly \$11.95)

SPECIAL RETAIL PRICE

\$239

(regularly \$3.33)

SL 712-14 (Antique Copper)—SPECIAL RETAIL PRICE \$3.29 (regularly \$4.44)

FREE . . . POWERFUL MERCHANDISING HELPS

- KING-SIZE POSTERS
- ENVELOPE STUFFERS

THE EXCITEMENT IS ON! BLAST OFF FOR THE BIG MONEY! MAIL COUPON TODAY!

THOMAS INDUSTRIES INC.

Light Fixture Division
207 E. Broadway, Louisville 2, Ky.



Thomas Industries Inc., Lighting Fixture Division

207 E. Broadway, Louisville 2, Ky., Dept. ML-1

Please have representative call with full details on STAR LIGHT'S Galaxy of Stars promotion.

Please send new FREE STAR LIGHT 1961 Catalog.

Company Name _____

Address _____

City _____ Zone _____ State _____

My Distributor is _____

SPECIAL SALE PRICES TO FEB. 14, 1961

ABOVE ALL:

Styrene lighting louvers molded of

LUSTREX® PERMA TONE



55° Louvers of Lustrex perma tone by American Louver Company, Chicago, Illinois, in the IBM Datacenter, Chicago, Illinois.

Here's why Lustrex perma tone is the most popular ultraviolet light-stabilized styrene today.

You can create large areas of illumination with uniform light distribution, and good diffusion, that are strikingly handsome yet low in cost. Lustrex perma tone—exceeding IES-NEMA-SPI joint specifications for ultraviolet light-stabilized styrene—assures truly translucent whites, and a complete range of colors. It is light in weight for easy handling, installation and maintenance—and it is dimensionally stable.

New Impact Lustrex perma tone provides extra toughness and flexibility for snap-fitting to metal parts, high resistance to abnormal abuse, and lighter weight through thinner walls. Write for comprehensive technical report on both types of perma tone, including accelerated aging test results and other valuable data on styrene in lighting, to Monsanto Chemical Company, Plastics Division, Room 801, Springfield 2, Mass.

LUSTREX: Reg. U. S. Pat. Off.

MONSANTO INNOVATOR IN **PLASTICS**



New **55° LIGHT SHIELDING LOUVERS** **MAKE THE DIFFERENCE**

in future lighting standards—available today!



IBM DATACENTER — CHICAGO, ILLINOIS



American's New 55° deep-cell styrene louver diffusers installed in IBM DATACENTER, CHICAGO, ILLINOIS — The deep-cell $\frac{1}{2}$ " high louvers provide better shielding from the light source, with optimum efficiency — higher lighting levels with exceptional unexcelled glare-free low brightness, comfort and appearance. The 55° angle shielding of uniform light distribution is the proven louver for today's and tomorrow's recommended higher lighting levels.

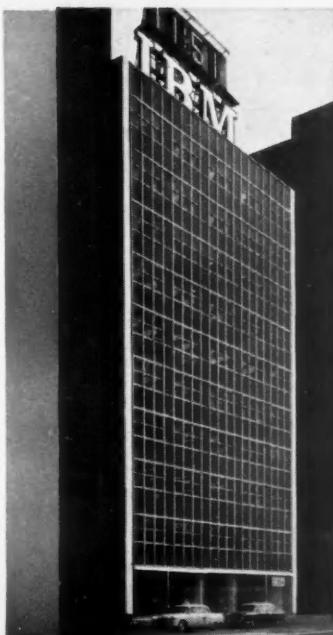
Louvers available in translucent white and a wide range of colors for use in individual fixtures, modular units and large areas of illumination. They may be cut, grooved or sized to meet the Architect, Designer or Fixture Manufacturers' most exacting requirements. Cell size $2\frac{5}{64}$ " x $2\frac{5}{64}$ " x $\frac{1}{2}$ " high.

Exclusive process by American Louver Company

U.S.A. Patent No. 2,566,817
Canadian Patent No. 484,346

U.S.A. Patent No. 2,607,455
Canadian Patent No. 497,047

Engineers are available in your area to help with your lighting problems — or write American Louver Company direct: Consultants to the lighting industry since 1939.



american louver company

5308 NORTH ELSTON AVENUE • CHICAGO 30, ILL.

meet us at the
**3rd
 NATIONAL
 LIGHTING
 EXPOSITION**
MAR. 5, 6, 7, 8, 1961
 at the
NEW YORK COLISEUM

Frank Dini Imports

NO. 383 . . . Hand casted aluminum with Florentine scroll, compliments this style . . . ideal for any indoor setting.



Dazzling elegance of imported tradition

left: NO. 52 . . . Finish of antique white and gold. Dramatic beauty to fit any decor.

right: NO. 34 . . . Finish of antique white and gold. Ideally suited for wall mounting.

Write for our new miniature catalog.

**FRANK DINI CO
 ROUTE 17, LODI, N. J.
 HUBbard 7-6305**

CATALOGS & BULLETINS

**Available free to readers
 of Lighting upon request**

PERFECLITE LIGHTING EQUIPMENT—A series of catalogs on lighting equipment is available from the Perfeclite Co., 1457 E. 40th St., Cleveland, Ohio. Included are a general catalog and several data folders on contemporary lighting.

Write No. A-1001 on coupon, page 17

JAY INCANDESCENT FIXTURES—Jay Lighting Manufacturing Co., 5 East 35th St., New York, N. Y., manufacturer of incandescent lighting fixtures, has just issued a 12-page supplement that illustrates and describes the newest additions to the hand-crafted Coronet series. This brochure is called "Coronet Series II." Included in its pages are the Baronets (14 to 20 inches wide), the Baroques (ranging from three to eight feet), three- or four-foot Monte Carlo floating rings, and the unusual double tier, double ring Catalina.

Write No. A-1002 on coupon, page 17

THOMA & GILL FASTENERS—Assorted bulletins describe and illustrate line of spring steel Pushnut fasteners which are pushed on unthreaded studs, rod, or wire. Available from Thoma & Gill, 530 Main St., East Orange, N. J.

Write No. A-1003 on coupon, page 17

SYLVANIA FLUORESCENT FIXTURES—Complete brochure (V-602A) covers broad line of commercial and industrial lighting fixtures, recessed shallow troffers, and air-handling troffers from Sylvania Electric Products, Inc., 48th St., Wheeling, W. Va.

Write No. A-1004 on coupon, page 17

SARNA LANTERNS FROM INDIA—S. S. Sarner, Inc., 39 West 19th St., New York, N. Y., has a 95-page catalog showing line of brass lanterns and accessories. All types are available, including drop pendants, wall and ceiling pulleys, chandeliers, and pole types.

Write No. A-1005 on coupon, page 17

KIRLIN RECESSED FIXTURES—Catalog No. 79, from the Kirlin Co., 3435 E. Jefferson, Detroit 7, Mich., gives complete information on recessed fixtures, both incandescent and fluorescent. Rapid estimate charts are included to calculate intensities quickly.

Write No. A-1006 on coupon, page 17

AMPLEX PORTABLE LAMP—Detailed folder from Amplex Corp., 214 Glen Cove Rd., Carle Pl., Long Island, N. Y., describes the new Trombolite portable lamp that combines fluorescent and incandescent light in an extension-arm design that is suited for desk, bed, shop, and many other uses.

Write No. A-1007 on coupon, page 17

ANGELO LAMP AND FIXTURE PARTS—Catalog No. 8 from Angelo Brothers Co., 23333 North Mascher St., Philadelphia 33, Pa., contains a supplement and ten flyer sheets on news items plus net price of all listed parts.

Write No. A-1008 on coupon, page 17



WATCH VIRDEN IN '61 for exciting new fixture designs for homes . . . for offices . . . for industry! Look for aggressive sales support . . . sales winning promotions . . . new merchandising plans! The lighting industry is big — and getting bigger. It is filled with profit opportunities. It is our goal to give Virden distributors all the vigorous support they need to capture their share and more of the expanding lighting market.



VIRDEN LIGHTING

a division of John C. Virden Company • 6103 Longfellow Ave., Cleveland 3, Ohio

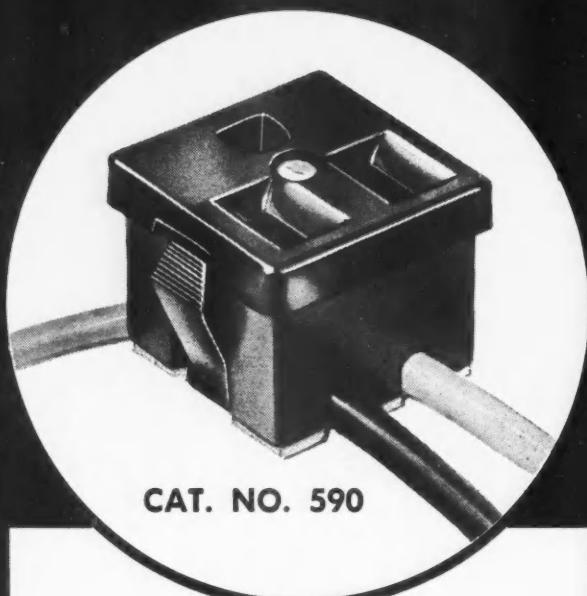
SUBSIDIARIES: LIGHTING DYNAMICS, INC., LOS ANGELES, CALIF. AND DALLAS, TEXAS; JOHN C. VIRDEN, LTD., TORONTO, ONTARIO

NEW...from TRIBORO

3 WIRE U-GROUND SNAP-IN CONVENIENCE OUTLETS

UNDERWRITERS LAB LISTED.

CSA APPROVED.



CAT. NO. 590

RATED 15A. — 125V.

Meets latest 3 wire code requirements. Molded in black phenolic or white thermosetting plastic.

Strong tempered spring steel clip will accommodate any material .031 to .062 thick, with tight fit.

Snaps in place with no screws to tighten. Speeds installation.

Standard leads are 6 inch #14 105°C AWM plastic leads. Longer lengths and other types of wire available on request.

Send for samples
and literature



TRIBORO
ELECTRIC CORP.

Waterbury & Ten Eyck Sts., Brooklyn 6, N.Y.
Phone HYacinth 7-3535-36

CROUSE-HINDS SPORTS LIGHTING—Crouse-Hinds Co., Syracuse 1, N. Y., has just issued a revised edition of its popular sports lighting bulletin, featuring nearly 100 suggested lighting layouts for sports from archery and badminton through volleyball and wrestling. The bulletin gives general information and application data, with recommendations for types of Crouse-Hinds floodlights best suited for each application.

Write No. A-1009 on coupon, page 17

BENJAMIN INDUSTRIAL UNITS—Lighting units for industrial assembly, sign boards, and gymnasiums are a few of the many varieties of lighting units offered in the new industrial incandescent lighting catalog just published by Benjamin Division of Thomas Industries Inc., 207 E. Broadway, Louisville, Ky. The 32-page catalog, called Bulletin "G", diagrams and describes units for general lighting and specific industrial needs.

Write No. A-1010 on coupon, page 17

MEIERJOHAN-WENGLER LIGHTING—A catalog showing lighting fixtures, lanterns, and lamp standards in contemporary and traditional designs custom fabricated in various metals is available from Meierjohan-Wengler, Metalcraftsmen, 1102 W. 9th St., Cincinnati 3, Ohio.

Write No. A-1011 on coupon, page 17

APPLETON QUARTZ LIGHT—A four-page illustrated brochure from the Appleton Electric Co., 1701-1759 Wellington Ave., Chicago 13, Ill., contains information about the application, features, dimensions, accessories, and photometric data about the 500-watt Quartzlite.

Write No. A-1012 on coupon, page 17

GILL DECORATIVE FIXTURES—Gill Glass and Fixture Co., Inc., Philadelphia 34, Pa., has just issued an illustrated 20-page catalog, "Gallery of Lighting Inspirations," featuring an exclusive handcrafted collection of lighting fixtures inspired by the Great Masters. Some of the world famous works of art by Gainsborough, Picasso, Renoir, Degas, Klee, Van Gogh, Cezanne, and Modigliani are featured in this booklet together with the lighting designs which stem from their influence.

Write No. A-1013 on coupon, page 17

KOPP LIGHTING SERVICE—A 20-page brochure, bulletin 760, describing the Kopp glass engineering and manufacturing service—step by step—from application analysis and formula development through mold design and custom-production, is available from Kopp Glass, Inc., Swissvale, Pa. It includes full color photos of products used in street and highway traffic control; aviation, railroad, and marine signaling; street and interior lighting; dental and surgical lighting equipment; as well as industrial globes, indicator lenses, and color filters.

Write No. A-1014 on coupon, page 17

CORNING LIGHTING PANELS—A new booklet, "Glass—Integral Component of Quality Lighting," illustrating the use of glass in several prominent lighting installations has been published by the Lighting Sales Dept., Corning Glass Works, Corning, N. Y. The brochure is offered as an idea stimulator for architects, engineers, contractors, and designers. The 18-page booklet contains a series of full-page, four-color photographs of lighting installations in eight commercial establishments across the nation.

Write No. A-1015 on coupon, page 17

INFORMATION CENTER



**Help yourself to free literature
and more details on any prod-
uct mentioned in this issue.**

Instead of writing a dozen different manufacturers for free literature and more information on products, or services, just insert on the cards below the appropriate key numbers of the items in which you are interested. These cards may be used to get information on products mentioned in the following departments (see Contents Page for page number):

CATALOGS — NEW PRODUCTS — BULLETINS — ADVERTISEMENTS

Be sure to print or write legibly your name and address—
drop it in the nearest mail box and

Lighting pays the postage!

JANUARY, 1961

Send free information on these NEW PRODUCTS and/or services (fill in key numbers):

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Company.....	Page.....	Company.....	Page.....
Company.....	Page.....	Company.....	Page.....

My Name Position.....

My Company's Name

Address (number and street)

City Zone State

JANUARY, 1961

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Send this FREE LITERATURE (fill in key numbers):

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Send free information on these ADVERTISEMENTS:

Company.....	Page.....	Company.....	Page.....
Company.....	Page.....	Company.....	Page.....

My Name Position.....

My Company's Name

Address (number and street)

City Zone State

These cards
can help
you get
valuable
information



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Addressee

No Postage
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BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

Lighting
806 PEACHTREE ST., N. E.
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FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

Lighting
806 PEACHTREE ST., N. E.
ATLANTA 8, GEORGIA

ULTRA-VIOLET LAMPS—Black light inspection of printed circuit boards, gear trains, etc., is described in detail in new literature available from Ultra-Violet Products, Inc., San Gabriel, Calif., manufacturer of Blak-Ray black light lamps.

Write No. A-1016 on coupon, page 17

K-S-H PRISMATIC PANELS—K-S-H Plastics, Inc., High Ridge, Mo., has available a new catalog sheet covering the white Opal K-4 and K-5 polystyrene prismatic lens panels. The sheets are a complete working tool for the architect and lighting engineer showing the products, available sizes, and complete brightness data charts, distribution charts, and coefficients of utilization. The catalog sheet carries AIA file numbers and is indexed to fit into natural sequence of the mast K-S-H catalog.

Write No. A-1017 on coupon, page 17

NEO-RAY DIFFUSERS—Neo-Ray Products, Inc., 315 East 22nd St., New York 10, N. Y., manufacturers of lighting fixtures and louvered and luminous ceilings, has published fluorescent lighting catalog No. 12A. The catalog features all modular sizes and types of plastic and metal diffusers. All fixtures have complete engineering information, cross sections, dimensional data, and large photographs illustrating their exact appearance.

Write No. A-1018 on coupon, page 17

PHOENIX ILLUMINATING GLASSWARE—The Phoenix Designers' Handbook from the Phoenix Glass Co., Monaca, Pa., contains over 180 items of illuminating glassware. Included are Lumina-Line, residential, commercial, and miscellaneous types. The booklet is tab indexed.

Write No. A-1019 on coupon, page 17

EASTERN FIXTURE CHAINS—Illustrated catalog shows chains and related items in actual size drawings from Eastern Chain Works, Inc., 309 East 22nd St., New York 10, N. Y. Folder can be hung as wall chart.

Write No. A-1020 on coupon, page 17

RUBY OIL LAMP REPRODUCTIONS—The Ruby Co., 129 West 27th St., New York, creators and manufacturers of fine lamps, chandeliers, and lighting fixtures for home and commercial installations, announces the publication of its new 1961 catalog. Illustrated and printed in full colors, the new catalog shows the complete Ruby line of authentic oil lamp reproductions. All the items are cast from exclusive molds, many of which date back to the Victorian era. These designs are being used by many decorators in modern homes, apartments, restaurants, hotels, etc.

Write No. A-1021 on coupon, page 17

CIRVAC LIGHTING LOUVERS—A six-page folder on Circlegrid, the new rigid, non-burning vinyl louver for lighting applications, is available from Cirvac Plastics, Box 655, Erie, Pa. Folder contains complete mechanical and engineering data, and specifications.

Write No. A-1022 on coupon, page 17

ACME PORTABLE LAMPS—Bulletins are available from Acme Lite Products Co., Inc., Congers, N. Y., describing their complete line of desk and portable lamps. Included is information on the counterbalanced swing type units and the magnified fluorescent inspection lamp.

Write No. A-1023 on coupon, page 17

LIGHTING for JANUARY, 1961



**ARCHITECTS...
BUILDERS...
ELECTRICAL
CONTRACTORS
LIGHTING DISTRIBUTORS**

call upon JAY steadily

to solve lighting problems in commercial installations and to supply distinctive, competently-engineered lighting fixtures for offices, showrooms, stores, restaurants, hotels, motels, institutions. Jay's Contract Department and Design Division function wherever the job may be. Variety with a flair for originality is the appeal of all Jaycandescent Lighting Fixtures—ready-made or made-to-order.

If you can't visit our showrooms may we have our representative visit you?

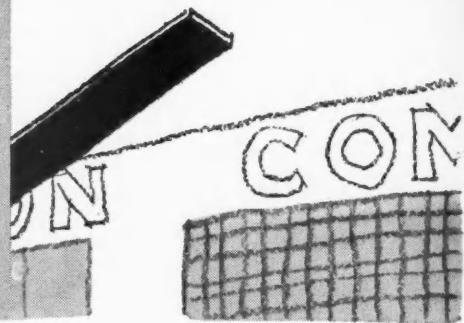


JAY LIGHTING MFG. CO., INC.

New York Showrooms—5 East 35th Street
Distributors in Principal Cities

Illustrated are Jay Coronet Cascade and Trumpet lights in the bar and cocktail lounge of New York's Skyline Motor Inn.

**"We found that many of
our employees have been
using the Payroll Savings
Plan for twenty years!"**



"Frankly, I was surprised to find out that the Payroll Savings Plan has been in operation for two decades. Even more surprising was the fact that so many of our people have been using the Plan to buy U. S. Savings Bonds every single month since the Plan was first put in. Some of our veterans told me they have used these savings to help buy homes, put youngsters through college, and to build up their reserve for retirement. Because it benefits the country and the community as well as themselves, we feel more of our people should take advantage of the Payroll Savings Plan. That's why we conduct a new canvass each year to remind them of its benefits. In addition, we call it to the attention of all new employees at the time they come to work."

Perhaps your own company staff has been increased substantially since your last Payroll Savings Campaign. If you will contact your State Savings Bonds Director, he'll be glad to set up a thorough canvass of your company family, and see that every employee gets a friendly explanation of the Plan, and how it makes regular saving so easy it is actually automatic.

ALL U. S. SAVINGS BONDS—OLD OR NEW—EARN $\frac{1}{2}\%$ MORE THAN BEFORE

LIGHTING



THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE.

LIGHTOLIER FIXTURES—The 96-page Style Book from Lightolier, Inc., Jersey City 5, N. J., includes a wide selection of fixtures and lamps of every description for indoors and outdoors. Booklet serves as basic guide for decorating with light, and contains illustrated descriptions.

Write No. A-1024 on coupon, page 17

WESTINGHOUSE HIGH-EFFICIENCY LAMPS—A booklet now available from the Westinghouse Electric Corp., Lamp Division, Box 388, Bloomfield, N. J., describes the company's new high-efficiency fluorescent lamps. Entitled "Introducing High-Efficiency Fluorescent Lamps," the four-page publication presents technical data and suggests applications for the new light source.

Write No. A-1025 on coupon, page 17

PROGRESS BUILDING PRODUCTS—To mark the introduction of the most powerful and inclusive building products line in its 54-year history, Progress Manufacturing Co., Inc., Castor Ave. & Tulip St., Philadelphia 34, Pa., is distributing its all-new building products catalog, illustrated in four colors. The catalog features an "exploded view drawing" technique. It describes a complete building products line: bathroom cabinets, range hoods, exhaust fans, and home radio-intercoms—priced for project or custom homes.

Write No. A-1026 on coupon, page 17

LUMINOUS DIFFUSERS—Available from Luminous Ceilings, Inc., 3701 North Ravenswood Ave., Chicago 13, Ill., is an illustrated, circular slide rule calculator of particular interest to specifiers of luminous ceilings. It quickly and accurately gives the description of a large variety of patterns in light diffusers available for luminous ceiling lighting systems. Rotary movement instantly supplies information such as penal sizes and average installation costs.

Write No. A-1027 on coupon, page 17

UNIVERSAL FLUORESCENT BALLASTS—A new catalog covering extensive data on fluorescent lamp ballasts is now available from Universal Manufacturing Corp., 29-51 East 6th St., Paterson 4, N. J. A wide variety of ballast types is covered by specifications.

Write No. A-1028 on coupon, page 17

KERRIGAN LIGHTING EQUIPMENT—Two new catalogs on lighting standard equipment are available from the Kerrigan Iron Works Co., 11th and Herman St., Nashville 2, Tenn. One catalog describes octagonal tapered steel and aluminum equipment and the other describes aluminum round tapered equipment. Included in the catalogs are new designs in both street and area lighting standard equipment with a good variety of arms to meet most any lighting problem.

Write No. A-1029 on coupon, page 17

G-E TEXTILE LIGHTING—The importance of improved lighting in textile mills is the subject of a 12-page, two-color publication announced by the Large Lamp Department of the General Electric Co., Nela Park, Cleveland 12, Ohio. Titled "Higher Profits through Better Textile Lighting," the booklet establishes that better lighting means such benefits as increased production, reduced costs, fewer accidents, fewer rejects, improved employee morale, better plant housekeeping, and less maintenance.

Write No. A-1030 on coupon, page 17



*Geri, The
Geringer
Gal Sez:*

**"HOWDY
PODNER . . .
DRAW A
BEAD ON
PROFIT WITH MY
NEW WALNUT
WAGON WHEEL!"**

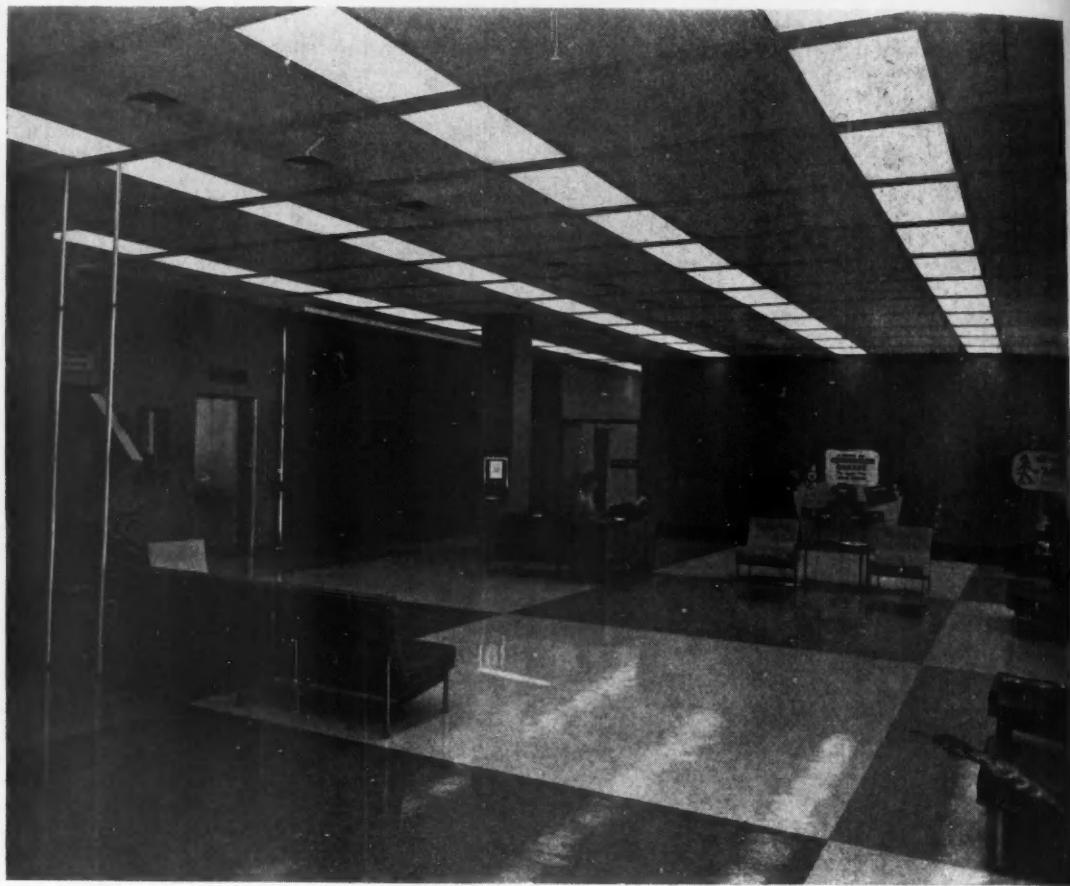
It's mighty purty! Fancied up with antique copper shades and trim. Why even the 24" wheel is rimmed in that dude copper. Back at the factory they got some dude numbers to use when you order. The 5 light is No. 225 AC. The 3 light 223 AC. In hard government cash that's about \$130.50 & \$92.85 for each at the store. So saddle up for sales, partner, & we'll ship it next stage out.

THE LINE DESIGNED WITH YOU IN MIND

GERINGER
LIGHTING

GERINGER & SONS MFG. CORP.

Factory & Offices: Peekskill, New York



Maintenance aspect of high-level

By Ted W. Beadle, Illuminating Engineer, Washington Water Power Co., Spokane, Wash.

■ When our company built its new 114,000 square foot office building nearly three years ago, it did not skimp on the lighting. It installed 2,500 recessed troffer lighting fixtures, each holding four fluorescent lamps—a total of 10,000 lamps altogether.

Fixtures were mounted in an 11' 2" high ceiling on the main floor, in 9' 2" high ceilings on the other four floors, and in the basement. Careful lighting engineering and use of low-brightness diffusing lenses gave us a level of illumination of 150 to 170 foot-candles, without glare.

In other words, we went first class. This, we felt, was as it should be for the new and ultra-modern office building for the

Spokane area's privately owned public utility.

We planned it for illumination, and we knew just what we'd get in that respect. What we could not anticipate, of course, were the maintenance expense of the installation and its illumination effectiveness over a period of time.

Now, after two and one-half years of operation, we can assess these maintenance values accurately. Frankly, they are turning out to be substantially lower than our most optimistic expectations. Not only that, but the quantity of illumination provided has depreciated by only a very small amount.

By any standard of comparison, the maintenance costs of this installation are proving less than half those anticipated in a normal lighting set-up. Here are some of the statistics which our main-

tenance study reveals:

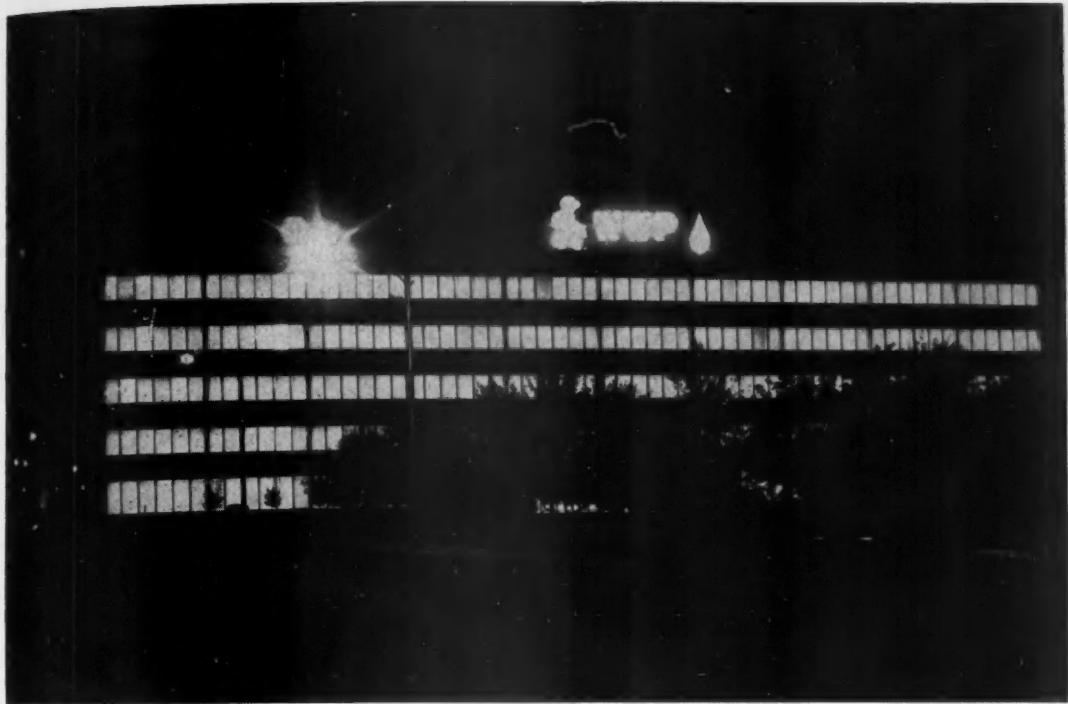
Out of 10,000 lamps installed, only 323 have been replaced to date. At an average of 14 to 16 hours of illumination per day, this means that all lamps have been burning approximately 15,000 hours since the system was first put into operation in May, 1958.

This represents a rate of burn-out of only 3 per cent to date.

The level of illumination has been reduced by only 10 per cent in 30 months of operation.

Instead of replacing the lamps entirely after 20 per cent have burned out and been replaced, we are now going to replace all lamps after the 10 per cent burn-out figure has been reached. Even at that, the cost of lamps per square-foot-year will be only approximately three cents.

You can never be completely



Careful lighting engineering and use of low-brightness diffusing lenses made possible an illumination level of 150 to 170 footcandles in the general offices of the Washington Water Power Co., in Spokane. Maintenance experience with this high-level installation shows maintenance costs to be less than half those anticipated and well below the designer's most optimistic expectations.

el Illumination

sure of all factors involved in a good maintenance experience like this. But we are reasonably sure in this case, it has been due primarily to (1) good engineering of the lighting system, (2) more continuous operation of the lamps than average, (3) good fixture design, (4) good circulation of conditioned air immediately above the fixtures, and (5) improvements which we assume have taken place in bulb manufacture in recent years.

The installation has a number of interesting facets from the engineering point of view. The building itself has a welded structural steel skeleton with cellular steel floor decking plus light weight floor topping. Curtain type walls are used for the exterior, with insulated double pane glass set in aluminum frames.

Interior walls are true modular



This is typical of the general office lighting in the Washington Water Power building. The continuous lines of troffers, spaced about eight feet apart, give completely shadowless illumination. Wall partitions like those at right are all modular and can be moved to new locations.

panels with movable metal partitions. With this, walls may be rearranged in any way that later may be desirable, forming new rooms of different dimensions. The light installation was designed to accommodate this feature.

Planning of the lighting system was a co-operative effort involving Spokane architects Kenneth W. Brooks and Bruce M. Walker, electrical engineer Joseph M. Doyle, the Power City Electric Company of Spokane, the electrical contractor, and myself—as representative of the power company. Much of the credit for success of the installation must be given to the excellent co-operation of these individuals.

The designers decided to install a 277/480-volt system. There were several outstanding advantages to this. It made possible fewer circuits and smaller wires. This installation required about 40 per cent fewer circuits than would otherwise have been needed. The saving in circuit breakers alone on this was substantial. In addition, the large blower motors used in the air-conditioning system operate more efficiently on 480 volts.

On every floor, the continuous lines of troffers were spaced about eight feet apart to give completely

shadowless illumination. Each pair of lamps was individually ballasted, each ballast being fused right in the fixture. Of these 5,000 ballasts, only two or three have failed to date.

Should new room arrangements be required, the ceiling light installation will not have to be changed in any respect. Only changes required will be the wiring from the fixtures to the wall switches, and this is greatly simplified by low voltage relays which can be easily regrouped as needed. Because of the low voltages here, we were able to use very light wire without conduit in the walls.

In case of panel changes, all that must be done to change the wiring is to remove the ceiling and base moulding and the panels to gain access to the wiring. In the ceiling, removable tile panels make that part of the job easy. So far, such changes have not been required.

Longevity of the lamps is certainly due in large part to the switching arrangement that distributes the lighting load uniformly. For 14 to 16 hours of the day, all lights in the building are on. The other eight to ten hours, exactly 25 per cent of the bulbs are burning.

This lighting load is distributed by means of automatic switching. For purposes of rotation, each pair of fixtures, containing four bulbs each, is switched so that one pair of bulbs, ballasted together, stays on one night, another pair the next, and so on until all four pairs have been used for all-night illumination. Then, the cycle begins again. Every fourth night, then, a particular pair of bulbs burn continuously for approximately 40 hours. Most lamps used in the building are four-foot rapid-start fluorescents.

Unlike many lighting installations, these troffers have plenty of air circulating around them. This is due to the fact that they were installed in a "false" ceiling with free air space between the false and the true ceiling above. This space was provided primarily for air conditioning of the building, but it serves to prolong the life of the lamps as well.

The building is heated and cooled by a large heat pump installation. At the time of the building's construction, this was the third largest heat pump in the world. In the summer, then, the air circulating between the ceilings is as much as 15 degrees cooler than that outside.

(Continued on page 62)



Special consideration was given to the lighting of this systems operation room. Four-foot fluorescent units in a

circular pattern are placed so as to provide 150 foot-candles in the vertical plane on the diagram board.

NEMA lighting program for 1961

Street lighting section will have the largest single-year budget in its history to continue its street and highway lighting program

■ Promotional programs totaling \$133,750 are planned for 1961 by two industry sections of the Lighting Equipment Division of the National Electrical Manufacturers Association, it was recently announced at the division's first annual meeting.

Of this amount the Street Lighting Section will spend \$118,750—the largest single-year budget in its history—to continue sponsorship of its Street and Highway Bureau.

The Bureau's 1961 program will include the initiation of a "women's street lighting crusade," in cooperation with the General Federation of Women's Clubs and the *Reader's Digest*; promotion of two films—"Out of Darkness" and "Let There Be Light;" national publicity in all informational media; publication of the bureau's quarterly magazine, *Street and Highway Safety Lighting*; and presentation of a new program—"Operation Night Watch."

The final project involves national broadcasting of night accident statistics over the 1961 Memorial Day holiday and will culminate in the bureau's appearance on the Dave Garroway television show on May 31.

Floodlighting promotion

The remaining \$15,000 will be used by the Floodlighting Section to launch a long-range program for the promotion of floodlighting of public and private buildings, monuments, parks, gardens, etc. It is expected that the activity will find ready acceptance among utilities which have advocated a promotional approach to the floodlighting market for several years.

Adoption of a 1961 promotional program by the Floodlighting Sec-

tion was in line with a talk by Charles C. Shotwell, assistant sales manager, Philadelphia Electric Co. Mr. Shotwell urged the industry to do more to promote floodlighting and referred to the application as the "stepchild of our industry market development planning" which "deserves a better fate."

Elements in the program he suggested to "tell our story and sell floodlighting to America" include editorial and feature news articles, mailing material, local promotion campaigns, civic action, and initiation of explanatory meetings for members of the Illuminating Engineering Society.

Mr. Shotwell recommended that the program be a cooperative project involving such branches of the electrical industry as manufacturers, power suppliers, electrical distributors, and contractors.

Chairman re-elected

The division also re-elected Clarence Keller, executive vice-president, the Holophane Co., as its chairman for the ensuing year.

In other actions taken at the meeting, it was announced that the Industrial and Commercial Lighting Equipment Section will participate with the Industrial Electrification Council—an activity co-sponsored by the Edison Electric Institute and NEMA. The section's role will be in connection with the council's activities on industrial lighting as part of its industrial environment project.

Sees bright future

Division members were told to look to the future with confidence by W. W. Garey, publisher, *Electrical Construction and Maintenance*, who forecast a total lighting market for 1960 of \$4,500,000,000.

Mr. Garey said that much has been done in the way of research through the Illuminating Engineering Society and by Dr. H. R. Blackwell, director of the Institute for Research and Vision at Ohio State University, but that the findings are technical and must be translated into more general language before the public realizes the significance of the results and accepts the need for higher levels of illumination.

He also recommended that the lighting industry place more emphasis on the qualitative rather than the quantitative approach in its promotional and sales efforts.

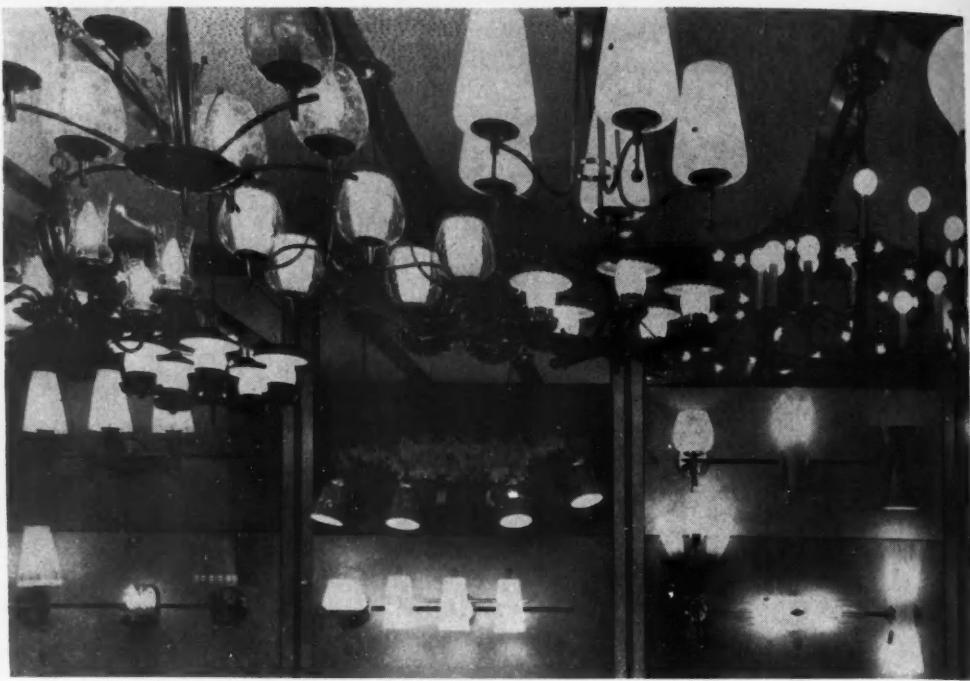
As one of the elements of the qualitative approach, Mr. Garey urged manufacturers to sell color, saying that lighting is not simply a black and white subject but one in which color plays a highly important part.

Lighting problems

Warren H. Edman, chairman of the Illuminating Engineering Society's Roadway Lighting Committee for Standard Practice Revision, stated that the two major problems to be solved in connection with street and highway lighting are the lack of scientific data, and the need for educating the public and its officials on the benefits of adequate lighting.

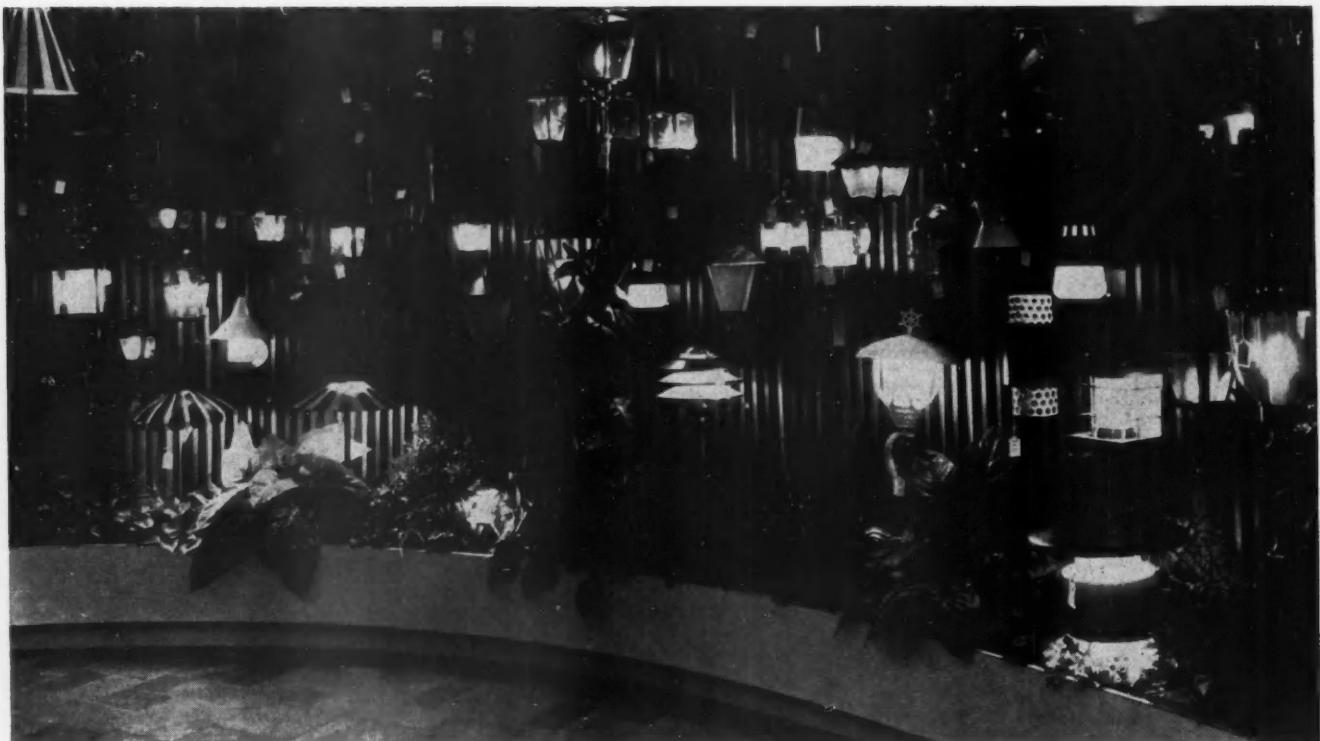
He emphasized that any lighting system, whether it be provided by fixed lighting or motor vehicle headlamps, must accomplish at least two things—"it must enable the driver to maneuver his vehicle safely in relation to the roadway and other vehicles, and

(Continued on page 62)

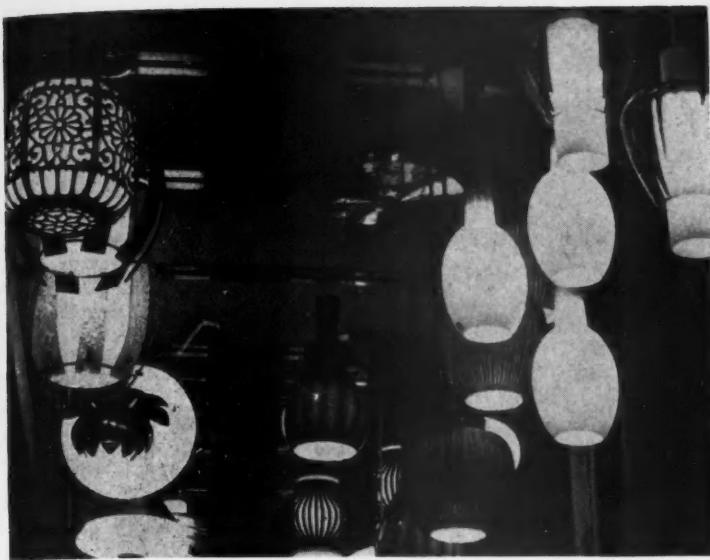


A cross section of the 850 functional and decorative ceiling and wall fixtures.

Unique display of home lighting



Dramatic highlight of the new residential lighting showroom of the Steiner Electric Co., Chicago, is this patio setting for demonstration of outdoor lighting fixtures. The garden setting helps homeowners visualize the lighting effects they can achieve in their own yards.



Novel ceiling mounting of fixtures is based on metal strips. Basically these are two L-beam type strips with an opening between. A removable T-shaped strip spans the "I's" above the ceiling, with a screw connection to support the fixtures. The acoustical tiles are movable, simply lifting up to provide easy access to connections.



Steiner vice-president, Samuel Solomon, shows daughter, Myra, how homeowners can be helped in fixture selection working from house blue prints. "Desk top" panel is actually a part of the wall lamp display board, folding down to form a unique blueprint reading table. The entire wall is similarly panelled.

equipment

■ One of the country's most attractive home lighting display centers has been opened by Steiner Electric Co., in Chicago, with a complete line of residential fixtures. With more than 850 fixtures on exhibit, Steiner Electric's showroom is believed to be one of Chicago's largest displays of home lighting equipment.

A veteran of 42 years in the residential lighting business, Steiner Electric sells a complete line of home lighting equipment to homeowners, as well as to contractors and builders.

The new display area is designed for ease of lighting selection by customers, and includes many innovations in layout and mounting. One of the highlights of the showroom is a patio area in which outdoor home lighting is dramatically portrayed in a simulated garden setting.

The company also has sectionized displays for bathroom fixtures; wall lamps for bedrooms, living rooms, kitchens, and other

(Continued on page 61)



City counter at the Steiner Electric Company's new residential lighting showroom is also a display area. Here Leon Weisbrod, Steiner Electric Company president, with Sid Drucker and Tom Trinski behind the counter, goes over display and sales plans with Harvey T. Sorensen, General Electric lighting specialist, and Tom Wolfson, of Lightolier, Inc.



Engineering design section of new research center of Warner and Swasey Co., Solon, Ohio

Research building lighting looks

Laboratories and testing areas call for



Exterior of the new research center shows the stainless steel sign and the plastic trade-mark, which dramatically identify the building at night. Letters are back-lighted, while trade-mark is illuminated.

■ Displaying the motto "Building for the Future" on the wall of its main entrance lobby, the newly completed 40,000 square foot Research Center of the Warner and Swasey Co., Solon, Ohio, is fully staffed and in operation, complete with modern lighting that looks to the future.

Of ultra-modern, aluminum and brick construction, the one-story center is located on 12 acres of rolling suburban land, east of Cleveland. The new facility is one of the largest and most modern in the machine tool industry.

The lighting system for the general test areas of the center utilizes Power-Groove fluorescent tubes, providing 120 footcandles of illumination with only a minimum number of light fixtures. This arrangement allows sufficient ceiling access for cranes, etc.

(Continued on page 61)



Ohio
Recessed fluorescent units provide functional lighting for entrance lobby.



Sterling F. Winchell, research head.

to future

exacting light



Lighting in high-bay area is arranged to give room for cranes and other heavy equipment.

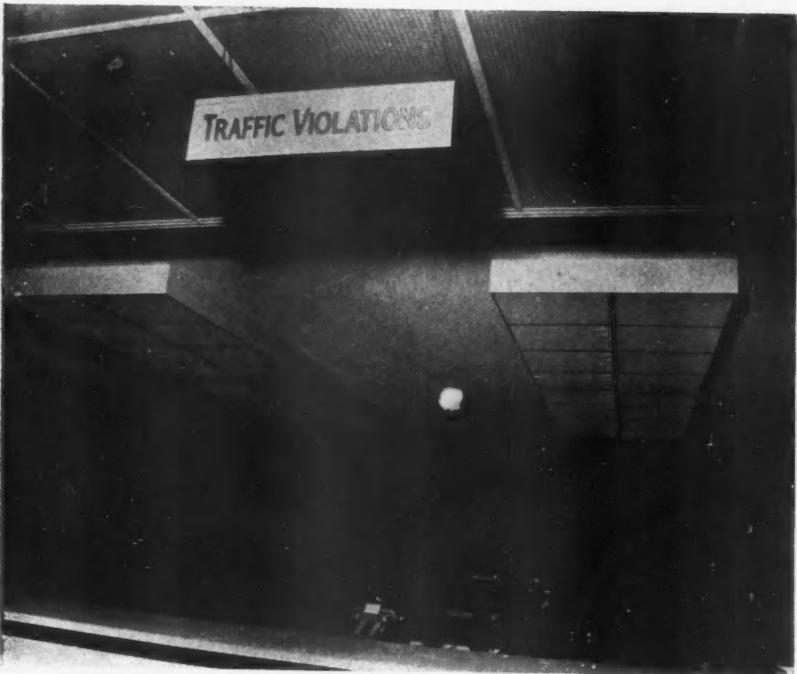


Hydraulic cylinder for company's big Gradall earthmoving machine is assembled prior to performance testing under minimum of 120 fc in high-bay area of center.



Creative precision develops under clean, even illumination. Electronic control system circuitry is tested and evaluated in cybernetics laboratory of the new structure.

Office style lighting in police building



Back of traffic violations counter in the Police and Courts Building, Little Rock, Ark., egg-crate louvers over fluorescent strips produce a pleasing effect. Luminous ceiling lights court sessions.



The record room is lighted with 12 Power-Groove type ceiling fixtures, each an 8 x 4-foot unit equipped with four 96-inch Power-Groove tubes. The illuminating effect is shadowless throughout the room.

Public's ideas on courts make lighting a problem

By S. W. Ellis, Lighting Field Editor, Little Rock, Ark.

■ Quality modern lighting that includes illuminated ceilings, shadow-free lighting for public areas of the new building, and wiring for a large administrative office that uses many business machines, presented a triple problem for the electrical contractor who won the \$35,000 contract for the new Police and Courts Building, Little Rock, Ark.

Harvill-Byrd Electric Company's solution for the multiple demands of this versatile electrical system, installed at the utmost savings in cost, was 480-volt wiring and unusually attractive lighting units. A 480/277 Y-connected electrical service takes power at 480 volts from the utility company. It is stepped down, through dry type transformers to 120/240 volts for conventional outlets.

The higher voltage permitted the use of smaller wire runs, resulting in a saving of about one-half in materials and installation cost.

The nine lighting panels are the circuit-breaker type, while the main distribution system is fusible.

Courtroom lighting

The illuminated ceiling in the main courtroom, with selective control of all other lighting in the room, is the last word in lighting for comfort, utility, and beauty. The white vinyl plastic, in matte finish, covers fluorescent strips. The plastic louvers are mounted on aluminum rails.

When the ceiling is lighted,

shadow-proof lighting is produced. Unlighted, with the main source of illumination proceeding from the judicial bench area, the ceiling panels are lined in pleasing detail that points up the diamond design of the plastic louvers.

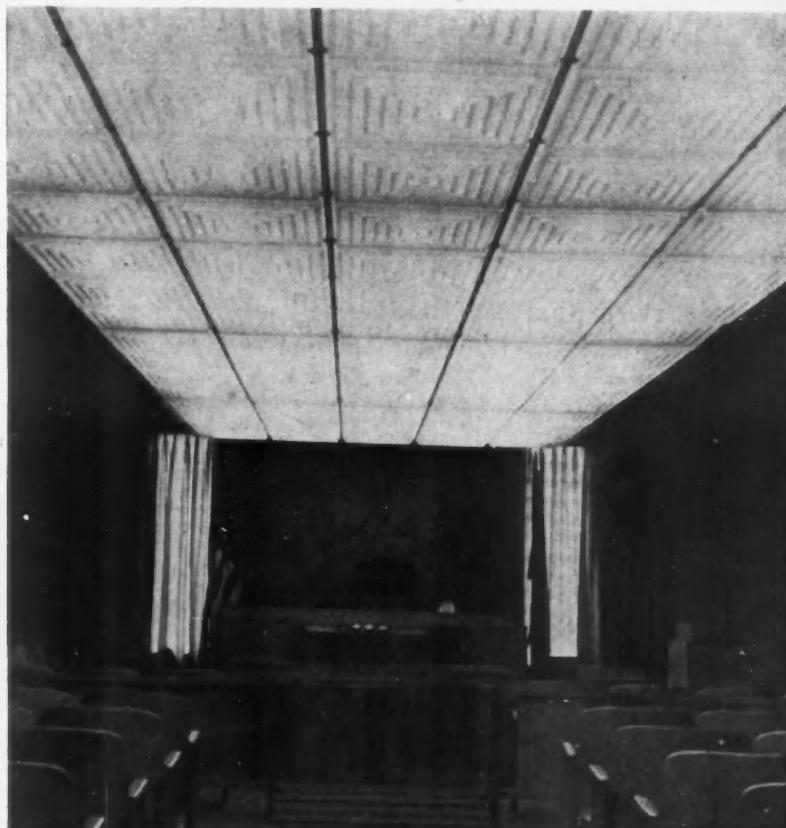
The court room for traffic violations was designed especially to give the traffic violator the feeling that he is not considered a criminal. Lighting, therefore, has an important impact on the taxpayers who enter the new building to pay minor traffic fines. This well-lighted area has white eggcrate type louvers over fluorescent strips. Three of these fixtures, back of the counter, measure 16 x 8 feet each.

Directly in front of the counter, overhead, is a strip of luminous ceiling with light gray louvers, producing pleasing subdued light when the counter is in use. Beyond this strip of luminous ceiling stretches the main entrance corridor, lighted with eight fluorescent fixtures, each 16 feet long and mounting four 40-watt tubes. This corridor is kept completely lighted day and night. Here, also the desk sergeant has his office.

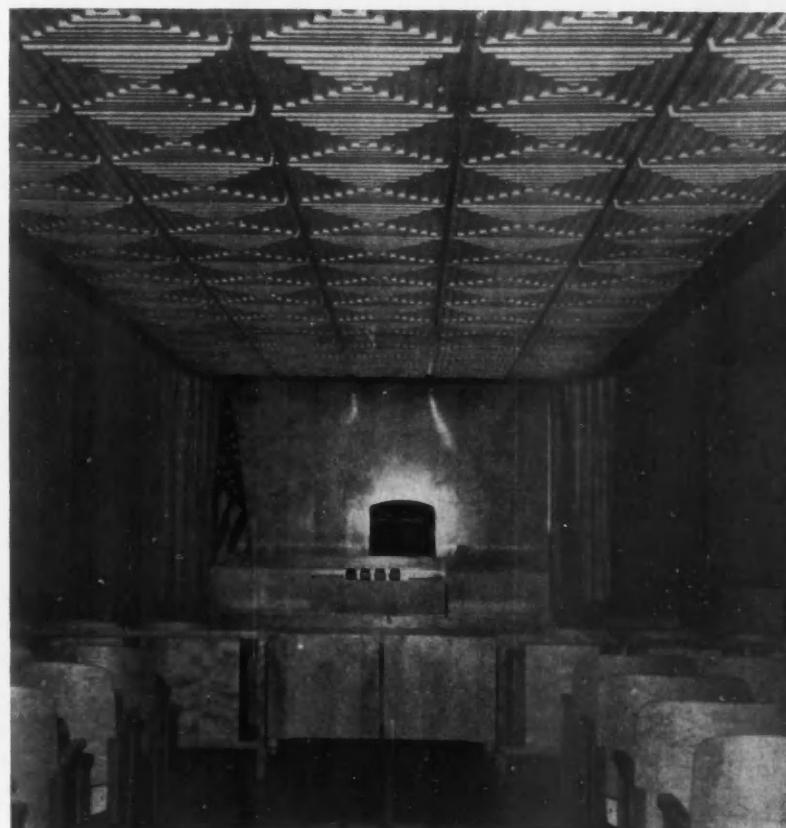
Shadowless record room

The record room is an outstanding example of quality electrical work. The large area is washed with shadowless light from end to end, presenting the effect that was calculated by architects and electrical engineers—the look of a modern business office. It is lighted with 12 Power-Groove type lamp fixtures. Each unit, measuring 8 x 4 feet, has four 96-inch power-groove tubes, operated on 277 volts. Floor ducts carry all telephone lines and electrical connections for adding machines, typewriters, and other electrical business machines.

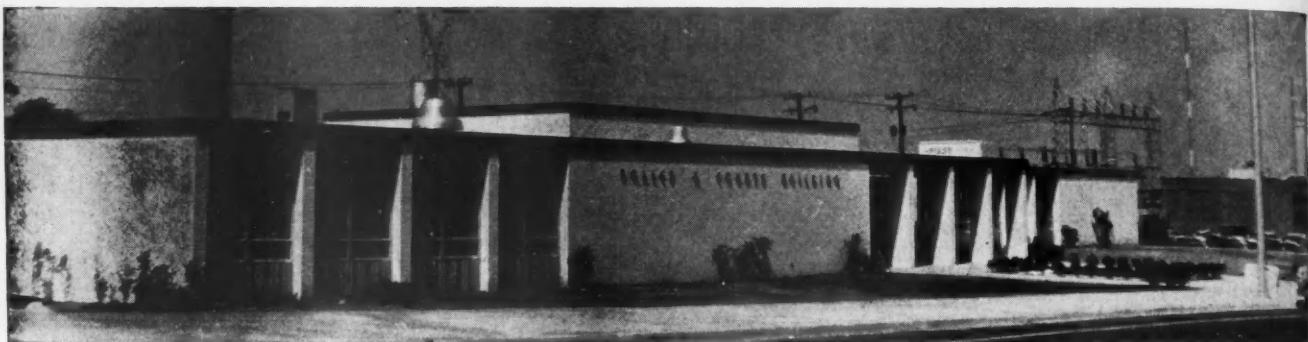
The rooms where lighting plays an important part in police work are the lineup room, lighted so that suspects standing in line can be seen without seeing who is observing them, and the investigation room, which has special light arrangements that detectives use in questioning suspects. Although these highly specialized lights are not of interest to the average builder employing the



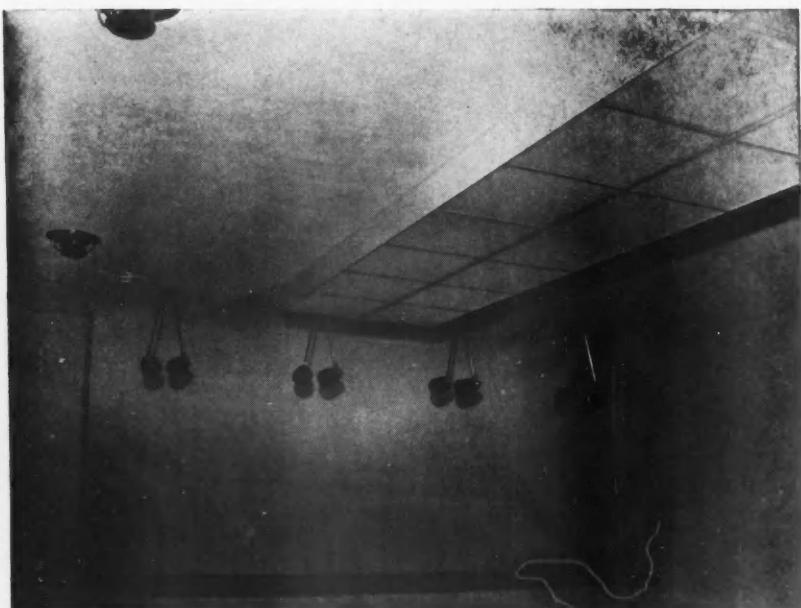
Shadowless lighting is also achieved by the luminous ceiling in the main courtroom. Selective control is possible on all other lighting in this room. Such flexibility combines eye comfort, utility, and beauty.



The main courtroom is seen above as it looks when the chief source of light is from the judicial bench area. The design of the white vinyl-plastic ceiling louvers is plainly evident in this photo.



Exterior view of the new Police and Courts Building. Outside lighting emphasizes entrance shrubbery at night.



A screen of light in the lineup room allows suspects to be seen without being able to see the witnesses. Special lighting effects are also used in the investigation room, where detectives question suspects.



Structure's entrance room, lighted day and night, has eight fluorescent units, each 16 feet long and mounting four 40-watt tubes. Lighting and wiring costs in building were reduced by use of 480/277 volt system.

'Package deal' saves money and time on new equipment

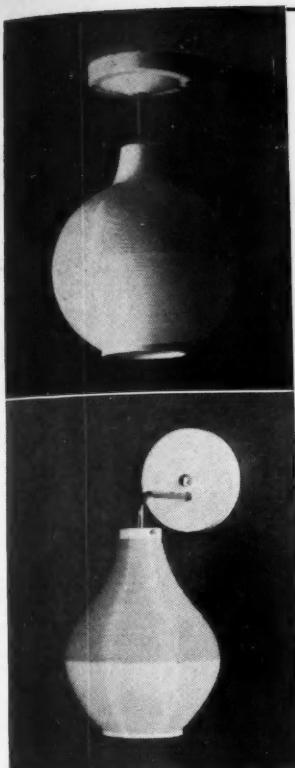
most modern developments in better lighting, they have attracted attention from many parts of the country. Visitors from other states, interested in a modern police and courts building, are coming here to view the latest in creative lighting.

Like the brilliantly-lighted interior, the public entrance draws attention with its lights. Fifty recessed down lights, each equipped with a 150-watt lamp, emphasize the landscaping at the entrance.

President W. F. Byrd, of Harvill-Byrd Electric Co., commented especially on the package deal he made for all distribution type equipment. The switchboard and the three dry-type transformers, with other equipment, down to individual disconnect switches, were all brought from one supply house.

"The package deal plan saved us money and time and provided us with one manufacturer to contact if something goes wrong."

The new building, costing \$600,000 with the land, was designed by Little Rock architects, Earhart, Eichenbaum, Rauch, and Blass. The structure houses the Municipal Court, Traffic Violations Bureau, and the city jail, as well as the administrative offices and operational division of the Police Department.



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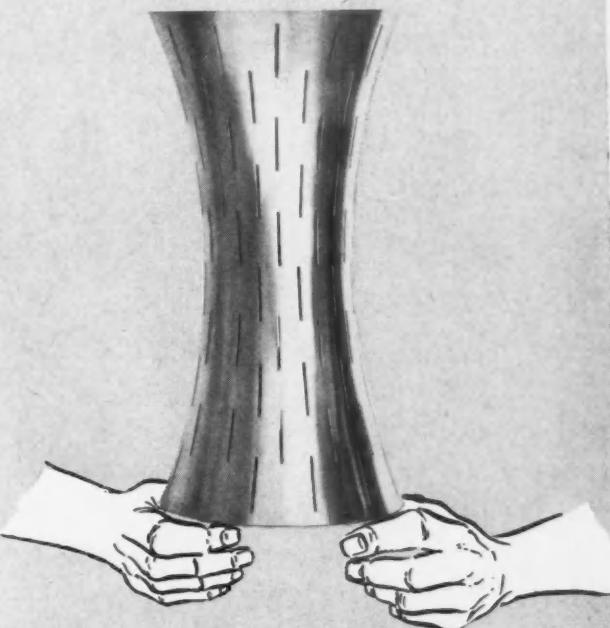
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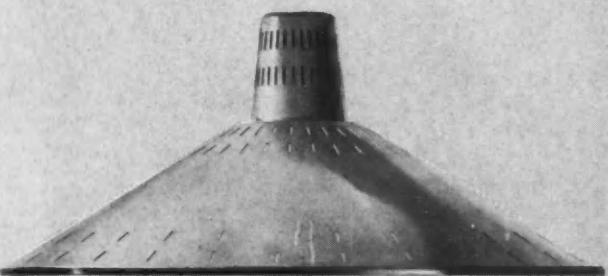
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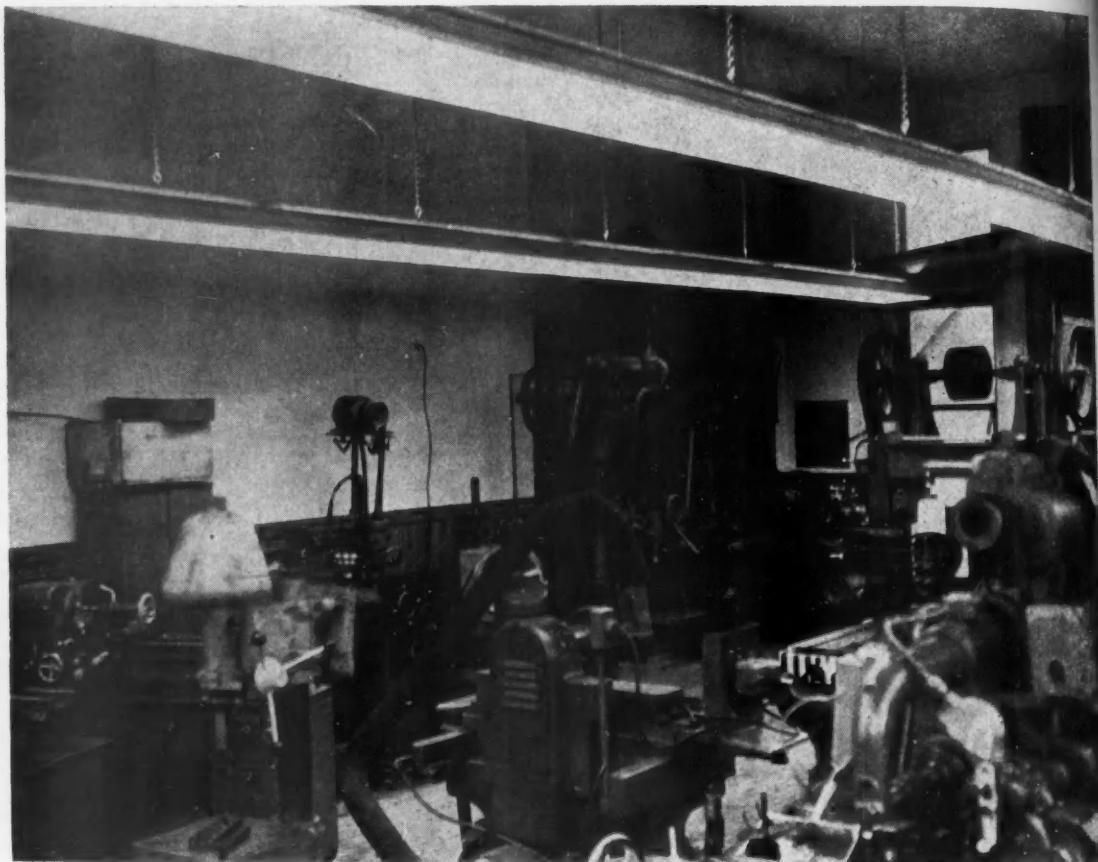
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Machine shop of Ashland Vocation School, Ashland, Wis., following installation of new lighting.

Shop gets shadowless 100 fc

By C. A. Crane, Commercial Lighting Specialist, Lake Superior District Power Co., Ashland, Wis.

■ Progress and persistence will pay off in lighting sales, and sometimes both are needed to help a customer decide on proper lighting. The Ashland Vocational School in Ashland, Wis., is an example.

The school board, deciding to modernize, authorized the vocational school's director to install new lighting in the machine shop, which had a lighting level of approximately eight footcandles. However, when the director sought advice from electricians and distributors, he was confused by recommendations of from 25



Lighting level of the shop was rated at eight footcandles prior to acquisition of new fixtures. Success of the installation has kindled new interest in higher lighting levels throughout the Ashland area.

to 50 footcandles of illumination for the shop.

Explaining the new IES recommended levels on one of my visits to him, I mentioned 100 footcandles, but the director was sure

this would be too much. He then tried estimating lighting levels of several installations, but was invariably low; so realizing that 100 footcandles sounded like more
(Continued on page 61)

DESIGNED BY MARVIN GRASPERSON

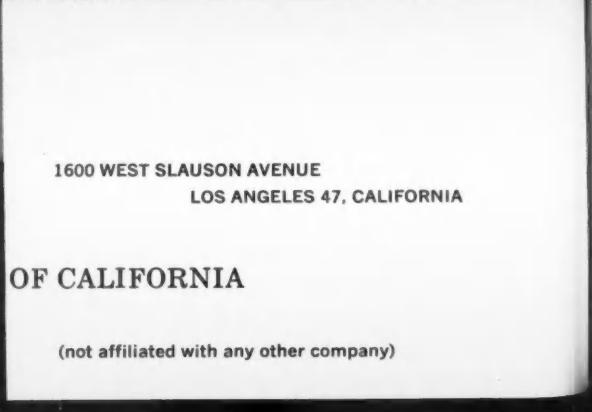
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Coves, spots, and "skirted" fixtures in main lobby of New Mexico student center.

Architectural lighting for university

Student lighting needs vary from art exhibits



Self-service book store is provided with 2 x 4 three- and four-lamp recessed troffers, with dropped plastic panels in ceiling pattern.

By Carl R. Albach, Consulting Engineer, Santa Fe, N. M.

■ Skillful use of several types of lighting fixtures has given the Student Union Building of the University of New Mexico a lighting system that is both functional and attractive.

In the early stages of drawing up the plans, the designing architect, Edward Holien, made reflected ceiling layouts of all the important areas. In this way, the downlights, coves, recessed fluorescent troffers, semi-recessed "skirted" fixtures, "star" fixtures, air diffusers, speakers, and special outlets could be located without conflict and form a pleasing overall appearance. The size and kind



Fluorescent and incandescent fixtures in cafeteria and snack bar have independent remote control dimmers.

structure

to a bowling alley

of lamps and the number of lamps per fixture were then determined for the particular lighting level desired.

The new Union, a pueblo-style structure and the latest addition to the growing UNM campus, can accommodate banquets, games, meetings, exhibits, dancing, crafts, and hobbies. It contains its own 205-seat theatre for movies, lectures, and special musical programs, and has 20 areas for handling food events.

The main ballroom, located on the first floor, consists of three rooms that can be used as one large room. The third room, at the back, can be divided into five smaller areas. It contains a stage

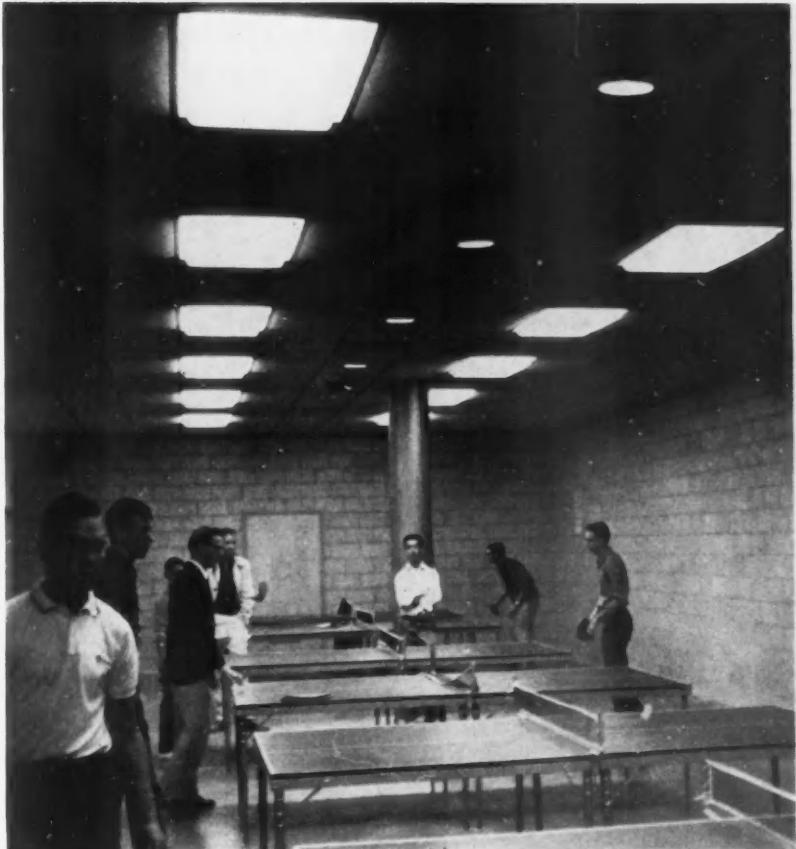


Table tennis room uses 4-foot four-lamp, wall-switch controlled troffers, plus downlights controlled by low voltage switches from game desk.



Lounges just outside of the main ballroom are lighted by fluorescent coves, downlights, and recessed indirect incandescent "star" type fixtures.

Independent dimmers control each lighting type

with dimmer-controlled stage lights, projection room, dressing rooms, two small balconies, coatroom, fireplace, two adjoining lounges, and a server for banquets.

The lighting in the ballroom is obtained from recessed downlights, rapid start fluorescent cove lights with dimming ballasts, and semi-recessed incandescent fixtures fitted with stainless steel "skirts." All of these ceiling lights are wired through remote dimmers which can be controlled from the stage or from the projection room.

The lounges, suitable for art exhibits, are lighted by fluorescent coves, downlights, and recessed indirect incandescent "star" type fixtures.



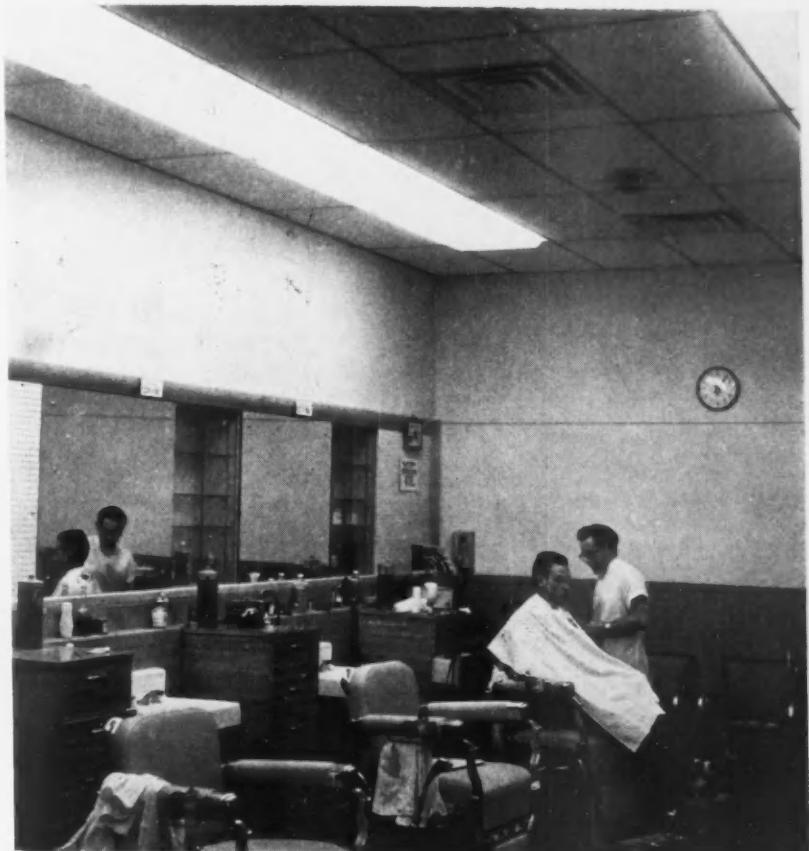
Close up of main ballroom shows dimmer controlled "skirted" fixtures, with coves, spots, and stage lights.

A self-service book store is located on the ground floor with a four-chair barber shop close by. This floor also contains the game area which includes a 14-lane bowling alley and facilities for billiards, table tennis, bridge, and chess.

Some 30 meeting rooms are available throughout the Union for all student organizations. A master calendar, containing a four-by-six-inch event card for each day of the year, is located on the second floor. This calendar area, as well as the information desk and snack bar on the first floor, and the game desk on the ground floor, are lighted by four-foot rapid start strips behind plastic ceiling panels.

The main lobby, cafeteria, and snack bar eating areas, located on the first floor, are lighted similar to the ballroom with downlights, rapid start fluorescent cove lights, and semi-recessed "skirted" incandescent fixtures. All these fixtures are controlled by remote dimmers with each type of lighting controlled independently.

(Continued on page 61)



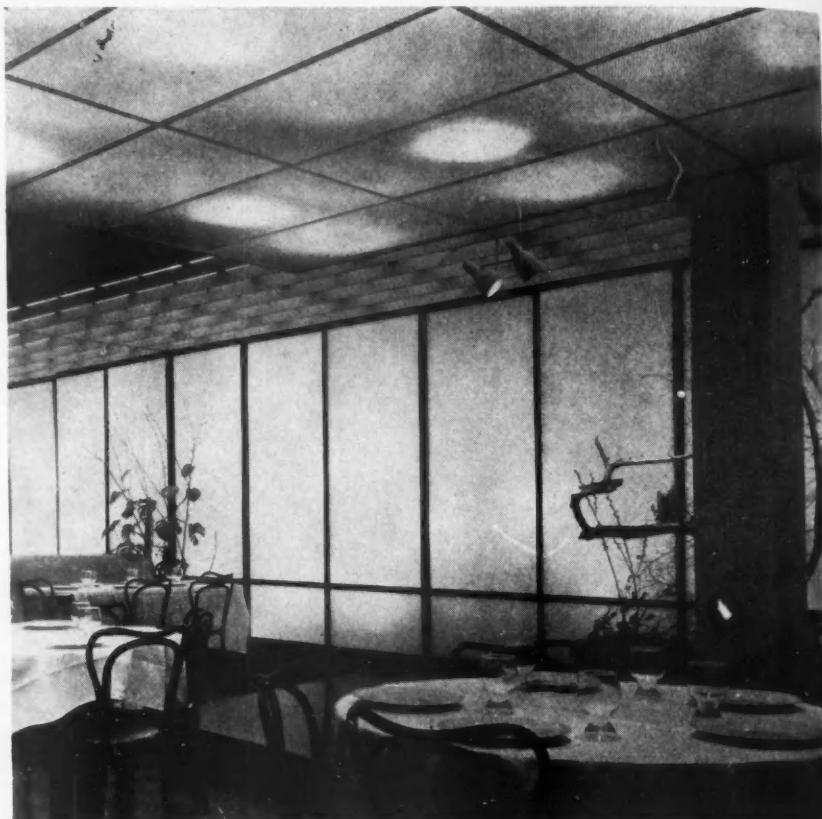
Four-chair barber shop on main floor. All fluorescent fixtures are equipped with individual fuses and radio interference suppressors.



Bowling alley lighting provides 30 footcandles for regular games and 50 footcandles for tournaments.

Vertical luminous panels give illusions of space

Plan eliminates 'closed in' effect in windowless rooms



Fluorescent panels give spacious vertical lighting effect to underground restaurant area in General Electric's Nela Park Lighting Institute.

By J. L. Tugman, Lamp Division, General Electric Co., Cleveland, Ohio.

■ My old friend Wilbur Riddle lectures several times a week on the varieties of mood that can be created in the restaurant area of General Electric Company's Nela Park Lighting Institute. The many visitors who hear him are always deeply impressed and greatly entertained.

The subject is one Mr. Riddle never tires of doing, probably because, as Resident Architect, he can offer visible, moving proof of the success of design which projects his experience.

There are too many features in the restaurant area to attempt all inclusive coverage. In fact, as Mr. Riddle informs his audiences, he would like to show them the full scope of changes the equipment can produce. This he cannot do, he regrets, because at one change per second the number of demonstrations possible would take 130 years!

One aspect of this tremendous

flexibility which has very important significance for advanced design in many lighting fields is the range of effects for the luminous vertical surface. The restaurant area, although below ground level, can exhibit a sense of spaciousness and color which is largely a result of careful treatment of a wall area with a large luminous vertical surface.

Readers of *LIGHTING* may find Mr. Riddle's answers to questions on this subject of special interest in their approach to lighting problems.

For instance, when I asked Mr. Riddle to review his own approach to the demonstration of principles involved in his recommendations on this element of interior design, he said:

"When we undertook to compress into this demonstration area all the ideas relevant to the uses implied, there was one problem that had special challenge for our ingenuity.

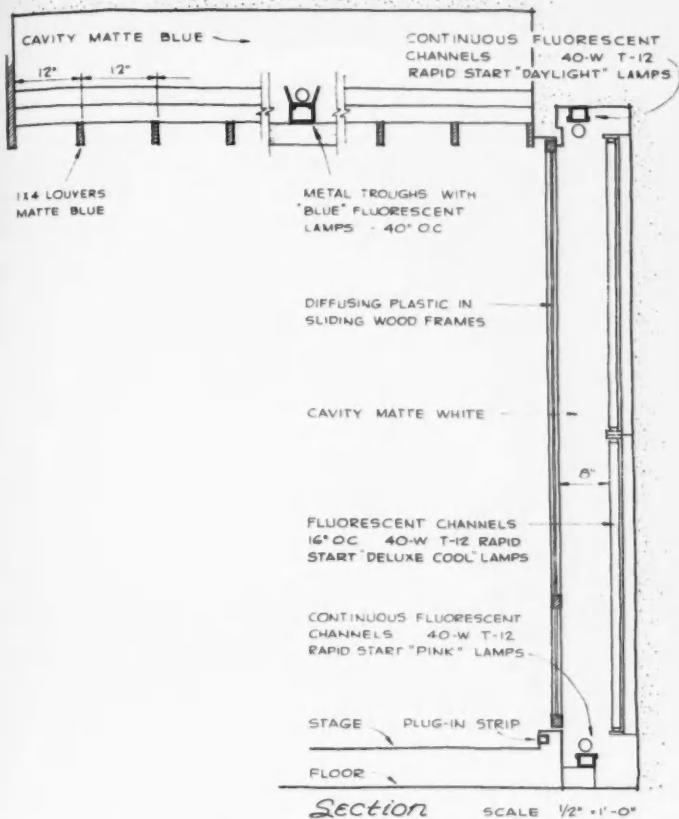
"Windowless areas emphasize a difficulty which is often handled

poorly in space that has good fenestration. (A wall with windows is equipped, per se, with luminous vertical surfaces, but the benefit cannot be guaranteed just because they are there.) The objective in treating walls is to avoid the sense of limitation and confinement. The satisfaction we get from the protection enclosure offers from inclement weather can be heightened psychologically if we have the visual impression that our eyes can range beyond the wall.

"Lighting design offers a repertory of effects for transforming the limitation of a wall into a positive advantage."

Taking the liberty to interpose another question at this point, I asked my friend why we couldn't rely on good overhead systems to deliver sufficient light to the walls. "Is vertical more vital than horizontal?"

"We do rely on overhead lighting to take care of everything in the great majority of lighting systems. If the horizontal footcandles we get this way meet standards



Detailed diagram shows lighting panel arrangement for restaurant area. Colored lamps behind panels add interest.



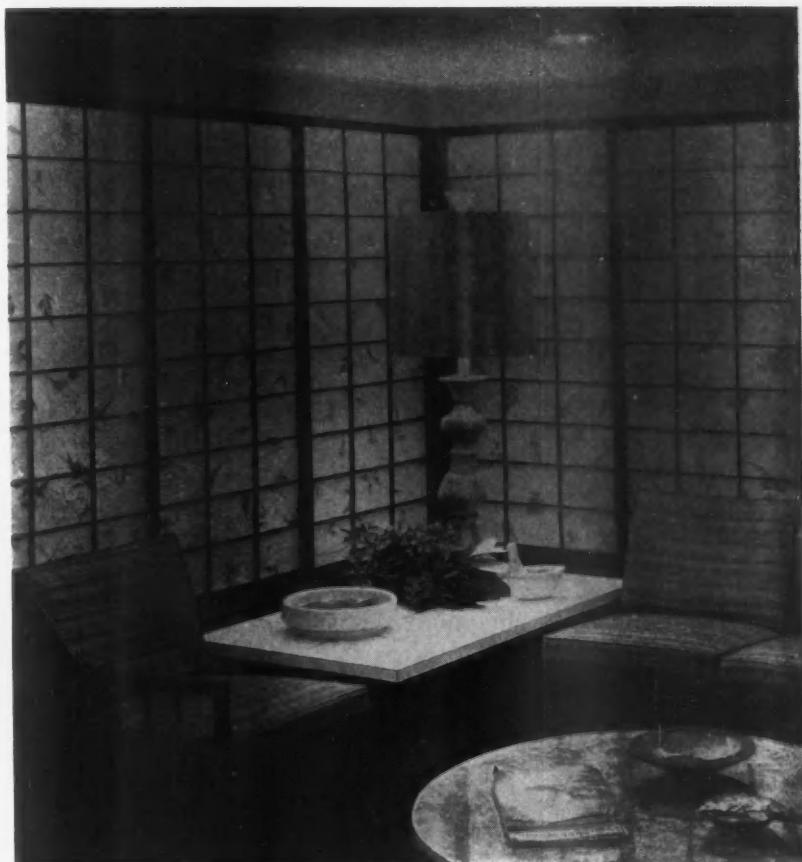
Opaque panels set into shallow cavity on board the USS Constitution. Lamps mount on back of panels.

of practice we generally assume we have done pretty well. If we did as well as we assume we do, people who specialize in lighting could retire without advancing the art and science much.

"However, it is elementary and fundamental that what we wish to look at in most interiors is a vertical surface. If I talk with you across a restaurant table my sight is directed to your face and to the wall beyond, both vertical surfaces. You may look pretty good in daylight, but you wish to look more attractive when you go to dinner. Women, of course, are far more concerned about this, and you often notice them fussing with their make-up to overcome the deficiencies of inadequate vertical lighting."

"Which brings us back to why you suffused the wall opposite the stairway entrance to the Institute restaurant area with a system of white and muted, blended colors which operate through a range of brightness values, all keyed low

(Continued on page 60)



Formerly a coal bin, this corner is now a conversation area. Lamps behind panels are mounted at top to give "natural" downward effect.



Campaign slogan: sell benefits and customers will buy the lighting

■ "Relighter," a commercial lighting campaign for relighting stores, schools, and offices, is being promoted by Kansas Gas and Electric Co., and will extend over a three-month period.

Featured in the campaign to expedite its success are sales aids, demonstrations, assigned quotas, and bonus prizes.

The objective of the campaign is to obtain a minimum of 720 kilowatts of additional lighting load through relighting existing stores, schools, and offices, reports Charles B. Weeks, commercial sales manager for the company.

The campaign philosophy is that the retail store operator isn't interested in watts and lumens, he is interested in the benefits he gets from lighting—more customers, larger sales, increased profits. The office manager doesn't care about louvers, shielding angles, or footlamberts, he also wants the benefits—happier and more efficient employees, faster work, fewer errors.

According to the company there are three types of prospects for relighting.

One type of prospect will want some sort of relighting; he feels the need for it, but he doesn't know what, why, or where to get it.

Another type of prospect wants to relight and has it all figured out (right or wrong) just how it should be.

The third type is the customer who "stumbles" along with a poor lighting job. He's satisfied—he doesn't know he needs better lighting. A special campaign booklet outlines some of the bene-

fits which the company believes that relighting will bring.

Inside a store relighting can mark the store as modern and progressive, create a clean and cheerful buying atmosphere, build customer confidence, make appraisal and selection easier, highlight special and feature displays, speed buying decisions, guide store traffic, increase impulse buying, reduce merchandise returns, and encourage repeat business.

An illuminated sign can do many things for a business: attract attention, beautify, give both day and night advertising, sell

quickly, dramatize a message, slow down and stop fast-moving traffic, identify the store, convey different messages, and present a friendly reminder—repeating the message without offending.

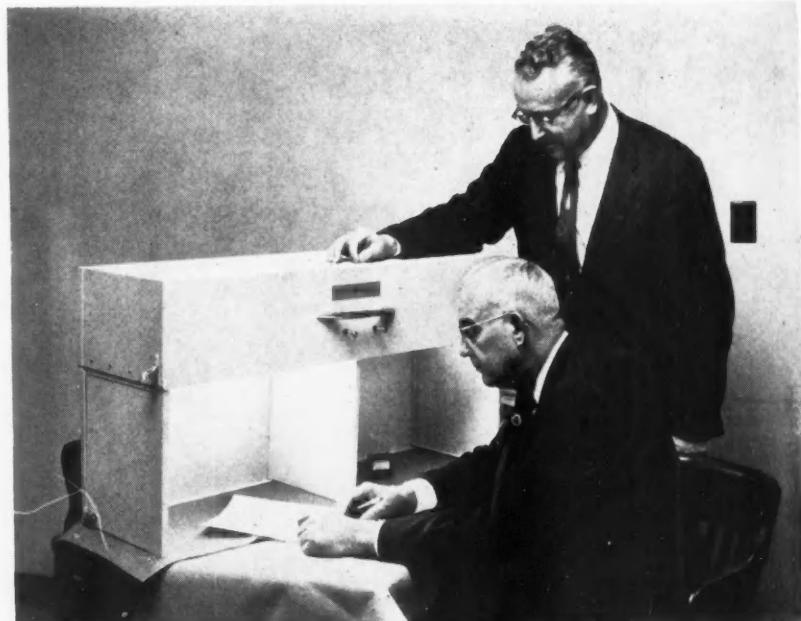
Show windows can be enhanced by lighting. Good lighting will attract attention, create distinction, increase value of the window space, extend a welcome, help window decorators, dramatize displays, give longer hours of window use, and sell merchandise.

Strip or outline lighting can make a bright spot in the darkness that is visible from a distance, and it can, when used in colors, make unattractive buildings show up favorably after dark.

Among the benefits to be derived from using floodlighting are its ability to attract customers and accent architectural features.

Lighting can accomplish these things in an office, the campaign booklet points out: boost productivity, save working time, cut down errors, help prevent costly accidents, improve employee morale, help keep older and more experienced workers on the job, promote better housekeeping, in-

(Continued on page 60)



C. P. McGrew (standing), commercial representative for Kansas Gas and Electric Co., is observing the See-Level Comparator while Ed Mills (seated), a customer, selects the level of illumination which he would like to have to read the material placed in front of him. Mr. Mills has the responsibility of providing and maintaining the lighting in several of the larger office buildings of Wichita, Kan.

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The editors of Lighting will welcome contributions from the field for publication. Electrical contractors, lighting consultants, electric utility lighting engineers, and others closely associated with the lighting industry are invited to submit articles, photographs, and drawings relating to important lighting installations and developments anywhere in the United States. All articles will be given careful consideration and payment will be made promptly for all material accepted for publication. Write for your copy of Lighting's "Author's Guide." Address all communications to

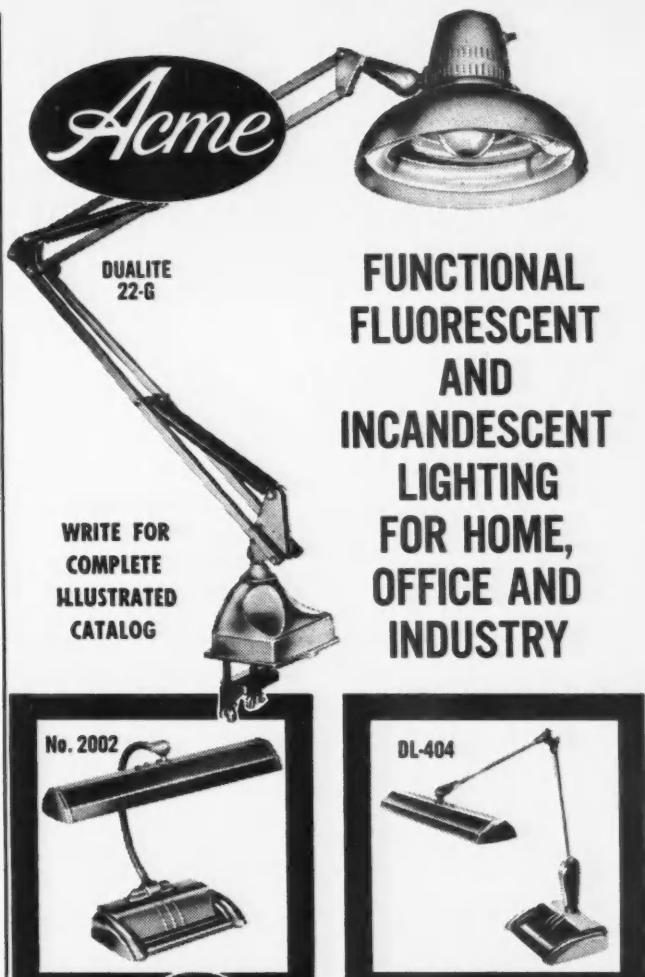
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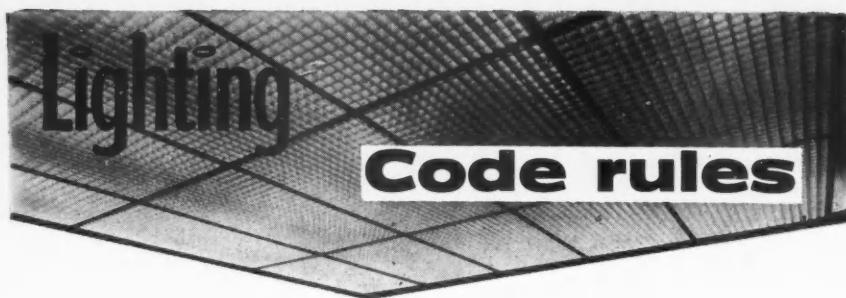
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Lighting switching circuits are covered by numerous Code rules

By Walter R. Stone, Contributing Editor on Code Rules, Utica, N. Y.

■ As the use of lighting has increased over the years, its method of control has grown more complex until today it is possible to furnish almost any degree of flexibility, convenience, and range of brilliance desired. As might be expected, however, there are Code rules governing, and to some degree limiting, the use and type of such control devices.

The most common control device, the snap switch, was mentioned briefly in the December, 1960, issue of *LIGHTING* in relation to its use for the control of inductive loads, such as fluorescent lighting loads.

As mentioned in that issue, the well-known general-use a-c/d-c snap switch, when used to control inductive loads, must have a current rating equal to twice the current rating of the load. This is required by Sections 380-14, 410-77, 410-90, and 600-2-b.

The newer and perhaps less well-known general-use a-c snap switch, on the other hand, may be used to control inductive loads, other than motor loads, up to and including the full current rating of the switch. (A motor load is not permitted to exceed 80 per cent of the current rating of this type of switch by the provisions of Section 430-83, Exception No. 1.)

Inductive loads include not only electric discharge lighting, such as fluorescent fixtures containing ballasts with lamps of both the so-called "cold" cathode and "hot" cathode types, but also outline

lighting which utilizes sign transformers and manufactured tubing filled with various types of rare gases. (See this department in the October and November, 1960, issues of *LIGHTING* for discussions of the Code rules governing these types of lighting installations.)

For snap switch control of non-inductive lighting other than tungsten filament lamps, the switch is required by Section 380-

14(a) to have a current rating at least equal to the load to be controlled. But Paragraph (b) of this section requires a snap switch which is used to control tungsten filament lamps to be either a "T" rated switch or, for alternating-current circuits, a general-use a-c snap switch except as follows:

A snap switch which is not "T" rated but which has a current rating of not less than ten amperes at 125 volts or five amperes at 250 volts or, for four-way switches, five amperes at 125 volts and two amperes at 250 volts, may be used to control branch circuit wiring in a private home, or in rooms of a multiple-occupancy dwelling which are used solely as living quarters, or in private hospital rooms, or in private hotel rooms, provided that a switch so used controls only permanently connected fixtures in one room only, in one continuous hallway, on a porch, in an attic, or in a basement.

Such a switch is not permitted to be used to control tungsten fila-

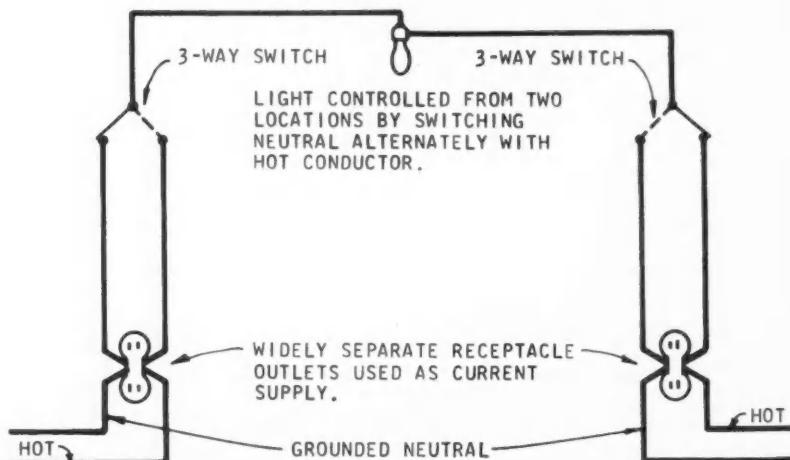


Fig. 1—This connection and variations of it were encountered far more frequently in knob-and-tube days than it is today. This method is not permitted by the Code. See Fig. 2 for correct three-way switch wiring.

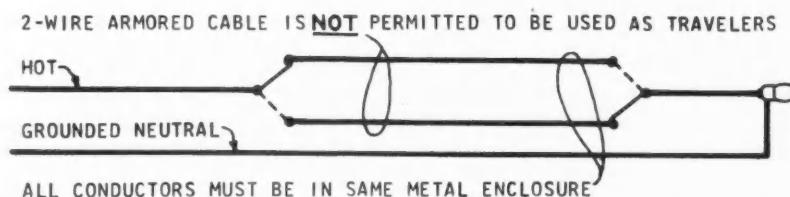


Fig. 2—Only the ungrounded (hot) conductor is permitted to be switched. Neutral must be in the same metal enclosure as the hot conductor. Where hot conductor is divided into two wires for switching control, the two wires must be treated as one conductor and the neutral as the other.

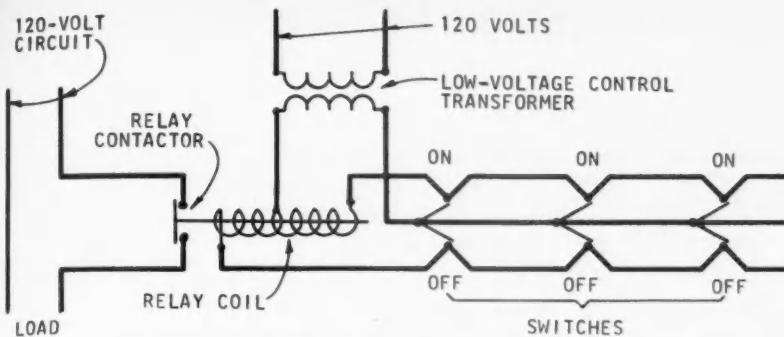


Fig. 3—In remote control type wiring, the relay contactor, operated by the relay coil, switches circuit load currents and must comply with Code rules for other type switches performing similar function. When relay is mounted in fixture box, one wire must be deducted from the number of wires otherwise permitted in the box.

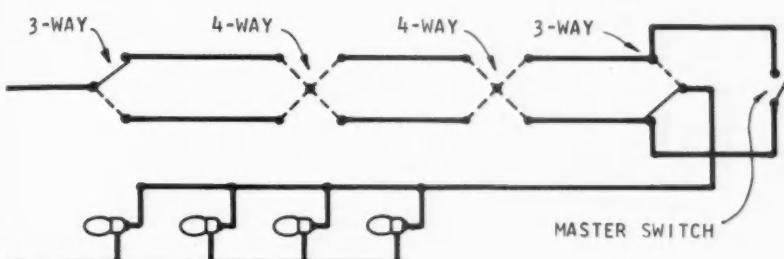


Fig. 4—In this switching connection, the number of lamps is limited by the capacity of the master switch. Several master switches or a special selector switch are needed where several circuits are to be controlled from one location by conventional switching methods.

ment lamps in any public room or in any area used for public assembly.

Switches as well as other electrical equipment are required by Section 110-4 to have voltage ratings suitable for the load to be controlled as well as suitable current ratings. For instance, a snap switch used to control a fluorescent lighting load supplied by a three-phase, four-wire, 460/265-volt, wye-connected secondary should be not only suitable for inductive loads, but also for the relatively high voltage of such a lighting circuit.

A general-use a-c snap switch rated at 277 volts or with a dual 120/270-volt rating would be permitted for this purpose. Such a switch could safely control a load with a total current rating equal to the current rating of the switch.

For computing the current rating of inductive loads, the actual current, including reactive ("wattless") current, of ballasts as well as of lamps is required by Sec-

tion 210-23(b) to be included in the total. High power-factor ballasts are recommended by the fine print note following Sections 220-2(a-1) and 220-4(a).

Such high power-factor ballasts should be used to prevent the need for larger than normal wire sizes for branch circuits and feeders for given lamp loads.

High secondary voltage

The 265-volt secondary system supplying the fluorescent lighting mentioned above is permissible by reason of Exception No. 2 of Section 210-6(a). This paragraph limits the voltage of lighting branch circuits to 150 volts to ground. Exception No. 2 permits a potential to ground not exceeding 300 volts for permanently installed electric discharge lighting mounted not less than eight feet above the floor in other than dwelling type occupancies and in commercial areas of hotels. Such lighting units are not permitted to have manual switching

units integral with the fixtures, but must be controlled remotely from the fixtures, such as by suitable wall switches.

Section 380-1 requires that the grounded circuit conductor be unswitched unless the switch or circuit breaker used to control the circuit is so designed that the grounded conductor cannot be disconnected until the ungrounded conductor or conductors have first been disconnected.

Section 380-3 requires switches and circuit breakers to be enclosed in metal boxes or cabinets except for special types, such as pendant and surface-mounted switches which are enclosed in ceramic or other suitable enclosures, and open-faced switchboard-mounted knife switches.

Section 380-4 requires such enclosures to be weatherproof when mounted out-of-doors or in other wet or damp locations, and Section 373-2 requires that they be mounted so that there is a $\frac{1}{4}$ -inch air space between the enclosure and the mounting surface.

Wiring three-way switches

Three-way and four-way switches which are used to control one or more lights from two or more locations are required by Section 380-2 to be so wired and connected that all switching is done in the ungrounded circuit conductor and not in the grounded conductor. See Figure 1.

This section also requires that all conductors running between three-way and four-way switches and between switches and loads be enclosed in the same metal raceway or armor where metal raceways or metal-armored cables are used as the wiring method.

This means, for instance, that a two-wire armored cable, such as BX, could not be used as the "travelers" between two three-way switches because, if so used, the neutral would not be enclosed in the same metal enclosure as the other circuit conductor. See Figure 2.

Another method of controlling lights from several locations which has come into wide acceptance during the past few years is the low-voltage switching sys-

(Continued on page 59)



Shopping center exterior lights controlled by tiny photocells

With the opening of Gimbel Brothers' newest suburban unit with its weekly patronage close to the half-million mark, the world's largest shopping center in Garden State Plaza, New Jersey, startled trade observers recently with announcement that all exterior illumination is triggered by a pair of tubeless controls weighing less than 2 ounces each.

The miniaturized photoelectric multiple controls, made by Precision Multiple Controls, already used on thousands of street, factory and commercial lighting poles, automatically turn on the Garden State Plaza's 400 parking area lamps and 1,000 canopy lights whenever natural light drops below five footcandles.

Commenting on the Plaza's experience with "automated light," Mr. Donald McDonald, operations manager for the retail store, declared, "We rank these Precision controls with our best investments in safety, security, and business attraction. They cost us less than \$30 for the pair, but save us 3,000 kilowatthours a month in outdoor lighting energy. Yet customers enjoy safer illumination even on dark days, our security force gains a policing aid that can't be neutralized by anything short of the sunrise, and Garden State's shops have a strong customer attraction because the whole area is cheerful and inviting even on gloomy days."

In the Garden State Plaza installation, the two controls are mounted on top of the central cooling tower, beyond the reach of vandals or after-closing prowlers who might seek to darken one

or more of the malls, truck docks, or parking areas of the vast Plaza. One unit triggers canopy lights spaced 12 feet apart on the all-weather overhangs that distinguish all shops, restaurants, and public buildings. The second unit actuates ten lamps on each of 46 parking area poles.

All perimeter and service area luminaires remain on until sunrise, depending upon the photocell control for automatic turn-off when natural light rises above 2.5 footcandles. The balance of the parking lot lamps are extinguished by a standard time clock shortly after store closing.

Before installation of the small, tubeless controls, manual turn-on of lights demanded several daily interruptions in the patrol work of security officers. With the lamplighting role assumed by miniature photocells, officers are able to patrol their beats more thoroughly from sunset to sunrise because every area that needs light is safely illuminated. Energy savings stem from the fact that no power is wastefully used when lights are not needed.

Revolutionary lightmeter aids relighting program

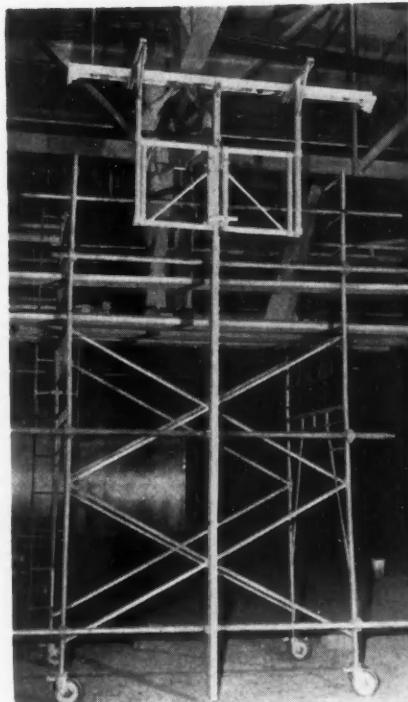
A REVOLUTIONARY low-cost meter called the Liteprobe is a basic element in an "Action Plan Kit" Graybar Electric is furnishing to electrical contractors with necessary information and materials to promote profitable modernization relighting in older buildings and outdoor spaces to their customers.

The major item in the "Action (Continued on page 59)

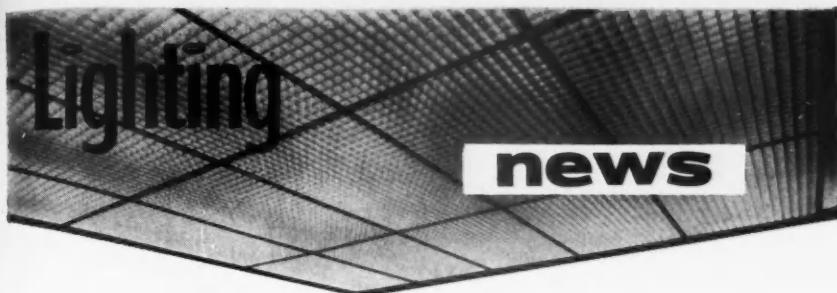
Fixture hoist saves \$50 per day on building job

AN ALUMINUM hoist assembly that lifts and positions fluorescent fixtures reduced manpower requirements 50 per cent and saved \$50 per day on labor cost for a total of \$3,000 on the installation of 1,200 four-foot and eight-foot fixtures in the new Alcoa Aluminum Building, Edison Township, N. J., reports Fishback & Moore, electrical contractor.

The hoist assembly is attached to standard aluminum or steel scaffolds. The two types of fixtures, weighing 50 and 100 pounds respectively, were placed on lifting arms that elevated them quickly along a vertical track by means of a winch operated from the scaffold. Lifting arms then move horizontally on rollers and elevate fixture to desired position above workman. This permits a single workman to install the fixture quickly and easily at the 16 foot height. Two teams of two men each working with two scaffolds handled the entire 1,200 fixture installation. Known as the "mechanical man," the aluminum hoist assembly is manufactured by Up-Right Scaffolds.



A fixture hoist and positioner, available as an accessory for a rolling scaffold, enables one man to install eight-foot fluorescent fixtures.



NY Supply Association picks officers, trustees

MAC BRAMBIE, Hobb Electric Supply, was recently elected president of the Lighting and Electrical Supply Association of New York for the 1960-61 term.

Other officers elected were vice-president, Irving Kopelman, Beaux Arts Lighting Co.; secretary, Samuel E. Broad, Shell Electric Supply Co.; financial secretary, Joseph Salerno, Tudor Electric Supply Co.; treasurer, Sid Levy, Arco Lighting Centre; and sergeant-at-arms, Sandy Goff, Ruby Philite Co.

Elected to the board of trustees were Mac Robin, Arco Lighting Centre; Fred Lampert, Shell Electric Supply Co.; and Al Cahn, U. S. Electric Supply Co.

The organization will continue to meet at 30 East 29th Street in New York City and hold monthly meetings, in addition to luncheons and dinners during the year.

New road light levels reported to committee

HIGHWAY LIGHTING to unusual levels was reported at the recent annual meeting of the U. S. National Committee of CIE (International Commission on Illumination), held at Nittany Lion Inn, State College, Pa.

Of interest to both the highway industry and the motoring public was the installation reported by John W. Young, consulting engineer of Boston, Mass. Mr. Young is chairman of the Street Lighting Committee of the U. S. National Committee and is the U. S. expert on the international "working party" of the CIE.

Mr. Young had just returned from Europe where he had observed the latest highway lighting installation in Holland. This is on a new four-lane divided highway between Rotterdam and The Hague. Continuous lighting to an average of three foot-candles maintained is provided the entire route. This is at least three

times that of the best similar lighting in the United States.

The new Dutch highway has no speed limit. Lighting is from four sodium lamps mounted on 40-foot poles located in the center dividing strip. This delivers some 85,000 lumens per pole, compared with the U. S. practice of 20,000 lumens per pole.

Standards of aluminum installed in Pittsburgh

ACCIDENT-PREVENTING illumination for motorists traveling Pittsburgh's new Penn-Lincoln Parkway now is being provided by 500 gleaming maintenance-free aluminum lighting standards.

Each standard consists of a round, seamless aluminum tapered shaft with a cast aluminum anchor base welded to the lower end. The light metal also is utilized in pole tops, tube bracket arm assemblies, and transformer bases.

Daniels Electric Equipment Co.,

Pittsburgh, is erector in the project. Fabricated by Hubbard Aluminum Products Co., Pittsburgh, the light standards, bases, and accessories are of metal supplied by the Aluminum Company of America.

Pole shafts for the lighting standards range from 29 feet, 4 inches, to 31 feet in height. They diminish in diameter from 8 inches at the base to 4½ inches at the peak. The curved upsweep bracket arm spreads vary from 6 to 15 feet in length.

World Lighting Forum to hear Slauer, others

Richard G. Slauer, Illuminating Engineering Society president, will present the keynote speech at the World Lighting Forum of the Third National Lighting Exposition.

The exposition, to be held March 5-8, 1961, will take place at the New York Coliseum. It is being sponsored by the Lighting, Lamps, and Electrical Manufacturers Salesman's Association, Inc.

Attendance at the show is by invitation only, with all facets of the lighting industry and its allied fields represented. At least 200 manufacturers will present over 250 exhibits, many on view for the first time.

The nine World Lighting Forum symposiums were planned by an honorary committee of lighting experts—for the manufacturer, the contractor, the wholesaler, and all the other buying influences involved in the lighting industry.



Pittsburgh's new Penn-Lincoln Parkway is illuminated by 500 maintenance-free aluminum lighting standards, which range to 31 feet in height.

Each symposium will last one and one half hours. There is no registration fee to attend the exposition, but there will be a \$2 registration charge for each of the symposiums.

Topics to be discussed in the forum and the speakers who have been confirmed are as follows:

Integration of Lighting, Heating, and Air Conditioning—Benjamin Benson, Thomas Industries, Inc.; Douglas Haskell, *Architectural Forum*; Murray Quin, Day-Brite Lighting, Inc.

Success of the New Recommended Higher Footcandle Levels for Office, Industrial, and Institutional—Henry Wald, Wald and Zegas; C. L. Amick, Day-Brite Lighting, Inc.; E. A. Lindsay, General Electric Co.

New Light Sources and Their Application—A. K. Gaetjens, General Electric Co.; William Till, Westinghouse Electric Co.; T. C. Sargent, Sylvania Electric Products.

The Creation of Comfortable Visual Environment—Quality and Quantity—Carl W. Evans, *LIGHTING* magazine editor; George Clark, Sylvania Electric Products; C. L. Crouch, Illuminating Engineering Research Institute; H. E. D'Andrade, General Electric Co.

The Importance of Adequate Street Lighting—Jerome J. O'Neill, Greater New York Safety Council; Newbold Morris, New York City Parks Commissioner; Edmond C. Powers, Street and Highway Safety Lighting Bureau; Stacy Standley, Line Material Industries.

Outdoor and Recreational Lighting—James R. Chambers, Appleton Electric Co.; Thomas Smith Kelly, New York City lighting designer; W. C. Cummings, Public Service Gas and Electric Co., N. J.; Wallace W. Weld, Revere Electrical Manufacturing Co.

Residential Lighting—Sylvan Shemitz, C. S. Mersick Electrical Supply Co.; Miss Elizabeth Meehan, Philadelphia Electric Co.; Mrs. Edith Brazwell Evans, *Living for Young Homemakers* magazine.

Esthetics of Lighting Pertaining to Entertainment—R. G. Williams, Century Lighting Co.; Dr. Joel Rubin, Kliegel Bros.; Mrs. Jean Rosenthal, theater lighting expert; Robert W. Dowling, City Investing Corp., New York City.

World Lighting—Abe H. Feder, lighting designer and consultant; Ludovic Gaymard, chief electrical engineer, Paris, France; Willard C. Brown, Cleveland Heights, Ohio.

In addition, many other authorities in the lighting field are expected to participate, and their names will be announced soon.

US building costs up another one per cent

CONSTRUCTION COSTS in the United States (excluding Alaska and Hawaii) rose another one per cent between April and October of this year, according to Myron L. Matthews, manager-editor of the "Dow Building Cost Calculator."

Coupled with a one per cent increase reported for the six-month period prior to April, this means that construction costs have increased two per cent during the past 12 months.

This increase is based on an averaging of building materials prices and hourly wage data sampled in 144 metropolitan areas throughout the country. Other elements of cost taken into consideration include design, taxes, insurance, money, and competitive conditions.

Looking to the future, Mr. Matthews forecasts an annual increase of from three to four per cent in construction costs in 1961.

Commenting on the building costs increase in the April to October 1960 period, Mr. Matthews explained, "Generally, it takes \$2.61 to buy and assemble the materials today that \$1.00 did in 1941. This means that the 1941 building dollar is worth only 38 cents today.

"The \$7,500 'dream house' of 19 years ago would cost \$19,575 to put up today. An industrial plant costing \$250,000 to build in 1941 would cost \$652,000 to duplicate today. Office buildings in the current \$25 per square foot class were available for less than \$10 in 1941," he added.

Sylvania Electric opens new distributor center

SYLVANIA Electric Products, Inc., has opened a new distribution center at 2211 East Hennepin Ave., Minneapolis, Minn., to handle warehousing, sales, and service to distributors of Sylvania's lighting products and television picture tubes in Minnesota, North and South Dakota, northern Iowa, and parts of Wisconsin.

Edward J. Lynch, director of distribution services for Sylvania, said the new center enables the company to provide custom service to areas formerly served by Sylvania's distribution center in Chicago.

The single-story, 25,000-square-foot building is of brick-faced, steel-reinforced concrete, and features the latest in materials handling equipment and techniques.

At present, 24 persons are em-

ployed at the new location, which represents consolidation of a separate sales office and warehouse facility in Minneapolis.

"To further insure prompt and efficient service, the new distribution center has been integrated into Sylvania's 23,000-mile private wire network," Mr. Lynch revealed.

Products initially distributed by the center include incandescent, fluorescent, electroluminescent, and photoflash lamps, and other lighting products and cathode ray tubes.

J. Blitzer makes trip to talk about lighting

J. H. BLITZER, a vice-president of Lightolier, has been abroad lecturing before audiences of architects, engineers, and designers on the newest trends in European and American decorative lighting.

His globe-girdling trip has taken him to London, Jerusalem, Hong Kong, and Rome under the auspices of President Eisenhower's People-to-People Program. It has as its aim to bring about an exchange of thought in lighting and design communities around the world.

In his hour-long talk, Mr. Blitzer discusses the psychological importance of lighting, both in terms of morale and efficiency. The first principle of effective lighting, he states, is the selection of key areas, and then the accenting of these key areas with light to create living centers. Pointing out that this requires pre-planning in the placement of outlets, he urges that architect, engineer, and decorator consult early to create a "lighting-in-use" plan.



After addressing an audience in Hong Kong, Lightolier vice-president J. H. Blitzer received attention from the press concerning his lecture.

This part of his talk is illustrated with a color film entitled "Decorate with Light," which demonstrates these principles as applied in a studio apartment.

Moe Light distributes new showroom displays

THE MOE LIGHT Division of Thomas Industries, Inc., Louisville, Ky., is arming its distributors and retail sales outlets with new free-standing showroom displays, which can be erected quickly and feature easy fixturing and refixturing.

In announcing a complete new line of merchandising lighting fixture displays, designed by Thomas Industries and Product Presentation, Inc., Cincinnati, and produced by the latter, E. Allen Lea, Moe Light sales manager, said:

"The secret of profit and profit-making lighting fixture sales and high turnover in any store is a modern, attractive display that will sell the fixtures visually. Moreover, the silent selling power of the actual working display is indispensable if dealers hope to take advantage of the increasing use of lighting as a

new dimension in interior decorating."

Mr. Lea said Moe's new modular showroom units enable the residential lighting fixture dealer to erect a showroom of any size or shape in an evening without outside help. Installation and changing of fixtures is simplified by the use of removable panels that slide or lift out.

Standards Institute elects new officers

AT THE RECENT annual meeting of the RLM Standards Institute, Inc., E. F. Mulligan (Jones Metal Products) West Lafayette, Ohio, was elected president.

Other officers elected were as follows: A. C. Kendall (Sylvania), vice-president; D. E. Worrell (Quadrangle), secretary; and D. E. Collins (Jones Metal Products), treasurer.

The recommendations of the long-range planning committee for extension of the services of the RLM Standards Institute to buyers and specifiers of lighting equipment were adopted. Important revision in specifications Nos. 100 and 101 to include

fusing of ballasts and new standards A-1 covering accessory shielding louvers were made.

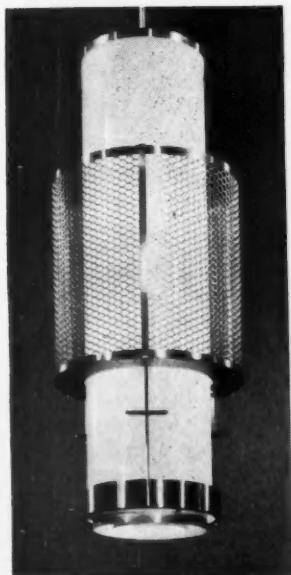
George Saviers heads special products group

GEORGE B. SAVIERS has been appointed manager of the newly established special products group of Westinghouse Electric Corporation's lamp division, it was announced by Charles E. Erb, division marketing manager.

In his new position, Mr. Saviers will be responsible for marketing products such as ultraviolet and quartz heat lamps that fall outside the scope of the company's regular field selling organization.

Mr. Saviers attended the University of Pittsburgh and joined Westinghouse in 1933. In 1946 he was appointed sales representative for the industrial electronics and X-ray division.

He was assigned to the lamp division in 1957 to head commercial engineering activities on Rayescent lighting (electroluminescence) and later was placed in charge of Rayescent lamp manufacturing.



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OPAL BALL (WITH FITTER NECK)				
Cata. No.	Ball Size	Fitter	Ctn. Pcs.	Wt. Lbs.
4500	5"	3 1/4"	12	10
4501	6"	3 1/4"	12	12
4502	7"	3 1/4"	24	42
4504	8"	4"	12	20
4506	10"	4"	12	27
4507	10"	6"	12	27
4508	12"	4"	4	17
4509	12"	6"	4	17
4510	14"	6"	4	21
4511	14"	7"	4	21
4512	14"	8"	4	21
4513	16"	6"	2	28
4514	16"	8"	2	28

NECKLESS OPAL BALL				
Cata. No.	Ball Size	Opening	Ctn. Pcs.	Wt. Lbs.
4516	6"	4"	36	35
4518	8"	4"	12	20
4520	10"	4"	12	27
4521	12"	5 1/4"	4	17
4522	14"	5 1/4"	4	21
4523	16"	5 1/4"	2	28

OPAL				
Cata. No.	Diam.	Filter	Ctn. Pcs.	Wt. Lbs.
4526	7 1/2"	4"	24	23
4528	9"	4"	12	18
4529	10"	4"	12	31
4530	10"	6"	12	31
4531	12"	4"	12	32
4532	12"	6"	12	32
4533	14"	6"	4	16
4534	16"	6"	4	23
4535	18"	6"	2	15

BATH ROOM GLASS
No. 4538
Opal Glass
Fitter 2 1/4"

BELL TYPE
blown opal glass
No. 4540 — 6" Diam.
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Packed 36 Wt. 23 lbs.
Price .60
No. 4541 — 7" Diam.
2 1/4" Fitter
Packed 24 Wt. 18 lbs.

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Area 60 per cent sold at Midwest Exposition

THE ELECTRICAL Association of Chicago has announced that nearly 60 per cent of available exhibit space has been sold for the sixth biennial Midwest Electrical Industry and Lighting Exposition, to be held May 2-4, 1961, at McCormick Place, Chicago's new lake-front exposition center.

According to Clif Simpson, managing director of the association, the 1961 exposition will be the largest show of its kind in the country. A total of 386 exhibit spaces have been made available, more than twice the allocation of 185 spaces at the 1959 show.

"We expect a sellout well ahead of show time," he said. "All but a few of the 1959 exhibitors have already made reservations, averaging 2½ spaces each."

"In addition, contact has been made with prospective exhibitors in the residential, commercial, and industrial outdoor lighting field; the industrial portable tool field; the electronics field; and others."

Exhibitors at the show will comprise manufacturers in these fields, as well as manufacturers of electrical devices, material, apparatus, and equipment used in the construction and industrial fields.

The exposition will not be open

to the general public; admittance will be by invitation only. Some 125,000 invitations and tickets will be mailed to prospective customers in advance of the show, Mr. Simpson said.

Hours for the exhibit will be from 1 to 10 p.m., all three days.

Progress picks Spillar to handle Texas sales

THE RECENT appointment of John Spillar, Jr., as Texas representative for Globe Lighting Products, Inc., has been announced by Alfred M. Rosenblatt, president of the firm.

A native of Texas, Mr. Spillar has been active developing showroom, contractor, and architect sales on the distributor level in his home state and Louisiana for the past nine years. As exclusive sales agent for Globe, he handles their complete line of residential and commercial lighting fixtures.

He may be contacted at 5315 Anita Dallas.

Representatives named to serve Halo Lighting

HALO LIGHTING Products, Inc., manufacturers of recessed lighting fixtures, has appointed two new representatives, announced Robert S.

Fremont, president of the firm.

The George Adams Co., 1521 N. Black Canyon Highway, Phoenix, Ariz., has been named representative for New Mexico, Arizona, and El Paso, Tex.

Mac Kessler, 607 Market St., San Francisco, Cal., a former Halo salesman, has been appointed as factory representative in the northern California area.

Rose Coakley appointed consultant for Superior

ROSE M. COAKLEY has been appointed lighting consultant for the Superior Electrical Co., Bristol, Conn., manufacturers of Luxtrol light controls.

A nationally known consultant on home, office, and industrial lighting for more than 25 years, she plans to work closely with distributors and electric utility companies in a



Rose M. Coakley

nationwide program designed to improve lighting and encourage the use of light controls.

Miss Coakley was formerly on the staff of the General Electric Lighting Institute, Nela Park, Cleveland, and more recently was consultant for a lighting fixture manufacturer.

During the past two years, Miss Coakley has conducted more than 20 lighting classes, made about 100 talks, and written many articles and booklets on home lighting.

Westinghouse assigns Rogers new position

LEO V. ROGERS has been named assistant to the manager of the Midwestern region of the Westinghouse lamp division. He will report to Robert D. Barr, Midwestern region sales manager.

In his new position, Mr. Rogers will be responsible for a broad range



First carload of fixtures is ordered

W. Vincent Farrey, seated, president of Farrey's Wholesale Hardware Co., Miami, and Robert Doncysen, left, general manager of Farrey's Lighting, a division of the company, are giving the order for the first rail carload of Progress, Gill, and Minute Mount fixtures to Leroy Stark, local Progress Manufacturing Company representative. Frank Cody, who is the Progress Southeastern regional manager, looks on.

of sales administration activities relating to the marketing of more than 8,000 types of light bulbs. He will make his headquarters in the Westinghouse lamp sales offices in the Merchandise Mart, Chicago.

After being employed in sales positions by several concerns, Mr. Rogers joined Westinghouse in February, 1955, in the Indianapolis sales district. He has been employed in that area since as a sales representative.

Corning picks Baldwin for marketing position

CORNING GLASS Works has announced the appointment of William M. Baldwin as manager of market development for lighting products.

He succeeds Frederick F. Fleischman, Jr., who has been named district sales manager of the Pittsburgh, Pa., office of the company's Technical Products Division.

Mr. Baldwin will direct development of new products and markets in the lighting field, and will be headquartered at Corning, N. Y.

He joined Corning in 1950 as a

junior engineer, and since 1958 has been supervisor of product engineering for the company's plant equipment sales department.

David Litten becomes lighting sales manager

DAVID L. LITTEN has been appointed sales manager of the Westinghouse Electric Corporation's lighting division, Cleveland, Ohio, according to Bruce Everly, marketing manager.

In his new position, Mr. Litten will be responsible for coordinating the activities of the company's regional lighting sales managers. Mr. Litten's most recent assignment was in Milwaukee, Wis., where he was a lighting sales engineer.

William Nanny chosen as marketing director

WILLIAM C. NANNY has been appointed marketing director of United Lighting and Ceiling Co., according to Robert A. D. Schwartz, president of the Oakland firm.

Mr. Nanny, former president of

Cepco, Inc., of San Francisco, will direct national distribution of United translucent and integrated luminous ceilings and the marketing of new products being developed by the firm.

Goff gets new position with Phoenix Glass Co.

W. H. GOFF has been elected to the newly created post of vice-president in charge of manufacturing of the Phoenix Glass Co. He has been with the Monaca, Pa., producer of illuminating glassware since 1952, most recently as works manager.

A glass industry employee for 34 years, Mr. Goff started his career in a cutting department. He joined United States Glass Co., Tiffin, Ohio, in 1943, in the industrial engineering department. He advanced to industrial engineer for United States Glass, then was named manager of the Tiffin Plant in 1948—a position he held until he joined Phoenix Glass in 1952 as plant superintendent.

He has been president of the Illuminating and Allied Glassware Manufacturers' Assn. since 1956.

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DIVISION OF UNITED-CARR FASTENER CORPORATION

Street light progress predicted by Powers

THE NEXT SEVEN months will see greater progress in street lighting modernization than any equal period in history.

This prediction was made by Edmund C. Powers, educational director of the street and highway Safety Lighting Bureau at the second national two-day Street and Highway Lighting Conference recently held at the Ambassador Hotel in Chicago.

"It is apparent from speeches of municipal and electric utility officials at this conference that the stage is set for a tremendous upsurge in the lighting of the nation's streets," Mr. Powers said. His topic was, "Can We Meet the Challenge?"

The conference was told by Mrs. Dexter O. Arnold, first vice-president of the General Federation of Women's Clubs, that the nation's 10,000,000 Federation clubwomen want adequate street lighting and are being urged by the Federation

to actively seek it in their home communities through their 17,000 affiliated clubs.

Mrs. Arnold emphasized that adequate street lighting is the best possible protection for the public after dark from criminal assaults and traffic accidents. "We women want adequate street lighting in our communities but we will need help and guidance to achieve it," she said.

"Cooperation by municipal, utility, and manufacturing officials will enable these clubwomen to properly inform their home communities about street lighting so that it may be modernized in the most efficient and economical manner," Mr. Powers pointed out.

The conference was sponsored jointly by the Edison Electric Institute and the National Electrical Manufacturers Association.

COMING EVENTS

National Assn. of Home Builders, Annual Convention, McCormick Place, Chicago, Ill., Jan. 29- Feb. 2, 1961.

AIEE Winter General Meeting, Hotel Statler, New York, N. Y., Jan. 29- Feb. 3, 1961.

Missouri Valley Electric Assn., Industrial and Commercial Sales Conference, President Hotel, Kansas City, Mo., Feb. 16-17, 1961.

National Lighting Exposition, Coliseum, New York, N. Y., March 5-8, 1961.

Southeastern Electric Exchange, Annual Conference, Boca Raton Hotel and Club, Boca Raton, Fla., March 27-29, 1961.

AIEE South East District Meeting, Jung Hotel, New Orleans, La., April 5-7, 1961.

IES East Central Regional Conference, Benjamin Franklin Hotel, Philadelphia, Pa., April 10-11, 1961.

IES Southwestern Regional Conference, Skirvin Hotel, Oklahoma City, Okla., April 17-18, 1961.

Alabama Electrical and Electronics Exposition, Second Annual Exposition, Birmingham City Auditorium Convention Hall, Birmingham, Ala., April 17-19, 1961.

IES Southeastern Regional Conference, Atlanta Biltmore Hotel, Atlanta, Ga., April 20-21, 1961.

National Assn. of Electrical Distributors, Annual Convention, Detroit, Mich., April 29-May 3, 1961.

IES Inter-Mountain Regional Conference, Salt Lake City, Utah, May 1-2, 1961.

IES South Pacific Coast Regional Conference, Sacramento Inn, Sacramento, Calif., May 4-5, 1961.

IES Pacific Northwest Regional Conference, Harrison Hot Springs, Harrison, British Columbia, Can., May 8-9, 1961.

IES CANADIAN Regional Conference, Queen Elizabeth Hotel, Montreal, Can., May 15-16, 1961.

IES Northwestern Regional Conference, Berkeley Carteret Hotel, Asbury Park, N. J., June 8-9, 1961.

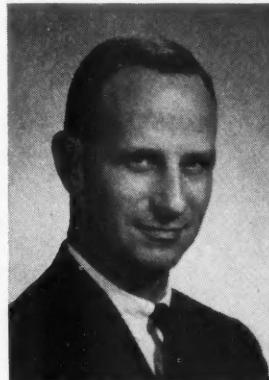
IES Great Lakes Regional Conference, Sheraton Gibson Hotel, Cincinnati, Ohio, June 19-20, 1961.

IES National Technical Conference, Chase Park Plaza Hotel, St. Louis, Mo., Sept. 24-29, 1961.

James Moses named to marketing position

THE APPOINTMENT of James H. Moses as director of marketing for Chicago Miniature Lamp Works was announced by Ernest E. Freeman, president.

Mr. Moses will assume direction of all marketing and sales operations



James H. Moses

of the company's extensive line of standard and specially engineered miniature incandescent lamps.

Before joining Chicago Miniature Lamp he was manager of marketing operations for the Eugene Dietzgen Co., and previously vice-president of G. Felsenthal & Son, Inc.

Mr. Moses received his education at Amherst College and Northwestern University.

Duro-Test announces atomic hydrogen light

A NEW and revolutionary concept in light bulbs, utilizing the recombination of hydrogen atoms, has been

announced by the Duro-Test Corp., manufacturer of incandescent and fluorescent light bulbs and electronic equipment.

"This new concept," said Walter H. Simson, president of Duro-Test, "opens a whole new frontier."

The new atomic hydrogen light bulb converts hydrogen energy into light by exciting luminescence in other materials, such as phosphors. The principle involved in the new light source is the dissociation of hydrogen molecules into atoms at a hot tungsten filament and their subsequent recombination on the phosphor-coated bulb wall.

This radically new concept in the field of lighting, Duro-Test announced, has been recognized by the Patent Office, which has granted the company a basic patent on the atomic hydrogen light bulb.

A light bulb far more efficient than the present day incandescent bulb is possible utilizing the atomic hydrogen principle, the company announced. In addition, through the proper selection of phosphor coating, a far greater variety of colors can be obtained.

The bulb was invented by Luke Thorington, research director.



G-E weatherproof ballast

A line of totally weatherproof ballasts in a radically new, cylindrical shape has been introduced by General Electric's Ballast Dept., Danville, Ill.

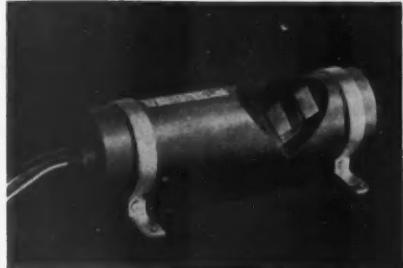
The core, coil, and capacitor of these new ballasts are encapsulated in a special compound which also

serves as the ballast case. The ballast's internal components are sealed in the compound, preventing the possibility of moisture or dust getting in.

The solid, impermeable, compound case cannot rust or corrode and the new ballast design has completely eliminated the metal case and seam common to conventional fluorescent lamp ballasts.

Extensive tests by department engineers showed the new ballast to be virtually indestructible.

Write No. P-101 on coupon, pg. 17



Progress Nite-Guard

Home owners will appreciate the dual protection afforded by the new Nite-Guard, made by Progress Man-

Contemporary

CHURCH LIGHTING

FOR today's modern church, nothing surpasses the simple elegance, the jewel-like finishes, the crisp lines of contemporary church lighting by NL...inspired creations...designed for both beauty and efficient illumination.

Write for illustrated Catalog No. 74...or ask for aid from our field representatives...anywhere in the United States.

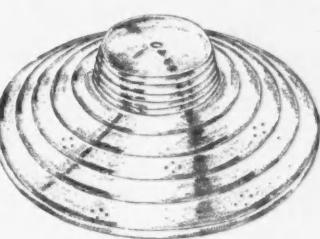
free!

NL Corporation Formerly The Novelty Lighting Corporation
2488-C East 22nd Street—Cleveland 15, Ohio
Designers and Manufacturers...Since 1905

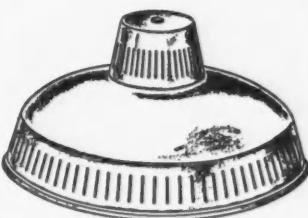
HOWARD

FAMOUS for QUALITY STAMPING & SPINNING

DR 916
RIBBED SHADE
Top 5"
Height 4"
Bottom Diameter 16"



DS 314
Ht. 5 3/4", Top 2 3/4"
Opening 13 1/2"



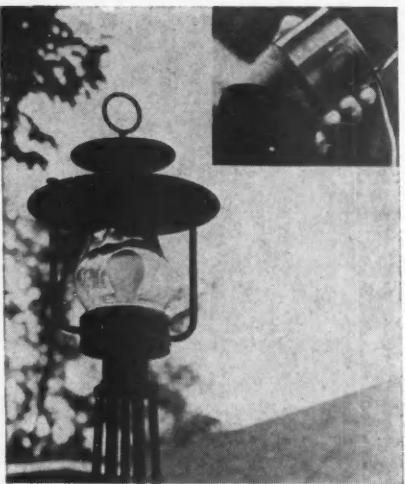
HR 160 RIBBED BULLET
Height 8 1/2" Opening 5 1/4"
Top 1 3/4" Will take Louvre



Sample and Catalogue Upon Request

Howard Metal Products Co., Inc.

92-26 180th St. Jamaica 32, N. Y. OLYMPIA 7-8500



ufacturing Co., Inc., Castor Ave. and Tulip St., Philadelphia 34, Pa., a photoelectric cell housed in a case of clear, weather-resistant Tenite butyrate plastic that automatically turns outdoor post lanterns on at dusk and off at dawn.

Made to fit into a section of three-inch post, the device ensures that artificial light is provided in drives or walks as soon as natural daylight falls.

It thereby aids in discouraging night prowlers and at the same time helps to guard members of the family and visitors from accidents or falls.

The Nite-Guard is pre-wired for easy installation and operates within temperature range of -35 to 140 F.

Write No. P-102 on coupon, pg. 17

Del-Val fluorescent fixture

Del-Val Manufacturing Co., 519 W. Huntingdon St., Philadelphia 33, Pa., is now in full production on their fluted styrene circline rapid-start fluorescent ballast fixture No. 2401.

It was especially designed for large area illumination in kitchens, bathrooms, dens, and recreation rooms.

Installed flush to the ceiling, the luminous fluted fixture spreads a light of even glow. The check plate is reversible to create a lighting fixture of dual design. The diffuser fully encloses the two fluorescent



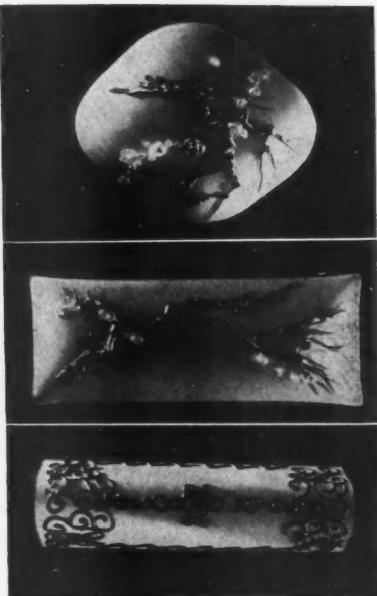
tubes (40 and 32 watts) to minimize cleaning problems and transmit a maximum of uniform light.

Write No. P-103 on coupon, pg. 17

Lightcraft fixtures

Sculptured bent glass fixtures are the newest contribution to better and more distinctive lighting units for the bathroom from Lightcraft of California, 1600 W. Slauson Ave., Los Angeles 47.

Two of the styles already in production for immediate delivery are



especially designed to meet current decorating trends. One features a metallic scroll for use with provincial period decors.

The contemporary style employs a tree motif with varicolored inlaid transparent gems that pick up and reflect light for added brilliance.

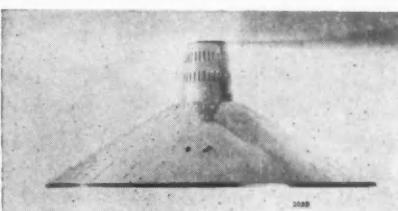
Write No. P-104 on coupon, pg. 17

Sheldon 'Elegance' shades

Sheldon Metal Products Co., 18 Martine St., Fall River, Mass., manufacturers of lighting components (stamping and spinning) has available its new "Elegance" series.

The designs combine quality with elegance and grace. No. 2028 is a two-piece shade and No. 1321 is an hourglass-shaped shade.

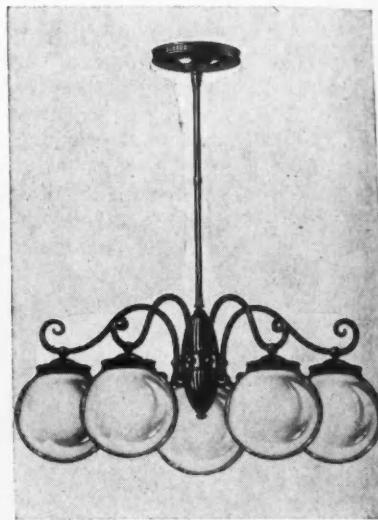
Write No. P-105 on coupon, pg. 17



Gill gaslight fixtures

Reminiscent of the gaslight era are the newly designed gaslight reproductions of ceiling and wall fixtures for dining room, foyer, or family room lighting by Gill Glass and Fixtures Co., Philadelphia 34, Pa.

The lines of these gaslight fixtures from the Gill Great Masters' collec-



tion are fashioned in polished brass or matte black with six-inch opal globes. The scrolled arm of the wall fixture or chandelier with its globe mounting can be turned up or down to create interesting decorating effects.

The gaslight chandeliers are available with two, three, or five globes and a special type of swivel mounting keeps the fixture in perfect straight line suspension.

Write No. P-106 on coupon, pg. 17

Westinghouse lamps

The new line of high efficiency fluorescent lamps has been expanded by the Westinghouse lamp division, Bloomfield, N. J.

Four additional lamps are being added to the line, which previously included a 40-watt lamp and a 96-inch slimline. The high efficiency fluorescent lamps provide 15 per cent more light than cool white lamps, and 36 per cent more than daylight type lamps, as the result of a new phosphor combination.

Producing 3,200 lumens, compared to 2,800 for ordinary 40-watt fluorescent lamps, the new product also has excellent light maintenance characteristics.

Added to the line are two new slimline lamps, the 48-inch and the 72-inch, which will be used in commercial and industrial applications either in complete installations or in combination with the 96-inch slimline. Another addition useful to

industry is a high efficiency lamp in the popular five-foot, 90-watt T17 size.

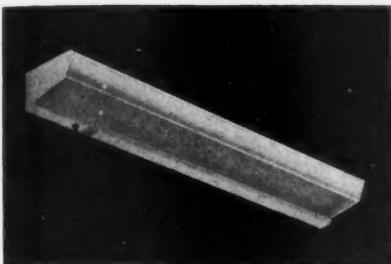
Also being added to the high efficiency line is a new 40-watt T17 instant start lamp to be used primarily in school lighting.

Write No. P-107 on coupon, pg. 17

Day-Brite hospital bed light

A new fluorescent hospital bed light, featuring both downlight for reading or patient examination and uplight for soft general room illumination, has been announced by Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.

The hospital bed lights are available in two- or four-foot models. Finishes include stainless steel or



baked white enamel. Lighting surfaces with Day-Brite Cleartex prismatic panels.

A companion fixture, the utility unit, is similar in appearance to the hospital bed light, comes in both two- and four-foot models, and has a convenience outlet. It is designed for wall switching, but can be ordered with a pull switch.

It is especially appropriate for installation over mirrors in fitting rooms, over writing desks in public buildings, above bathroom mirrors, etc.

Write No. P-108 on coupon, pg. 17

G-E fluorescent ballast

A new ballast for use with the recently announced 60-inch, 1.5-ampere rapid-start fluorescent lamp has been introduced by General Electric's Ballast Dept., Danville, Ill.

Designated model 6G3544, the new ballast has Underwriters' Laboratories general listing for use with the new lamps.

This ballast-lamp combination is ideally suited for an industrial program of converting the conventional F9OT17 switch start lamp and ballast to the new high-lumen-output 1.5-ampere rapid-start system, according to company engineers.

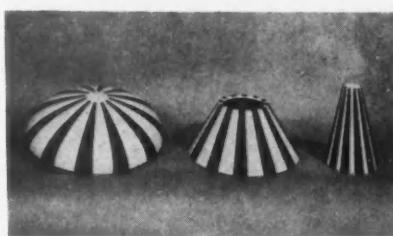
The new ballast is "E" sound rated, and has a series lead circuit and a

power factor above 90 per cent. Designed to operate at a minimum starting temperature of -20 F, the ballast is rated 120 volts, 60 cycles.

Write No. P-109 on coupon, pg. 17

Marplex fiberglass shades

A woodslat design for fiberglass shades which maintains the wood character in a lit and unlit condition



is available from Marplex Co., 348 Washington St., El Segundo, Calif., manufacturer of fiberglass molded lamp and lighting components.

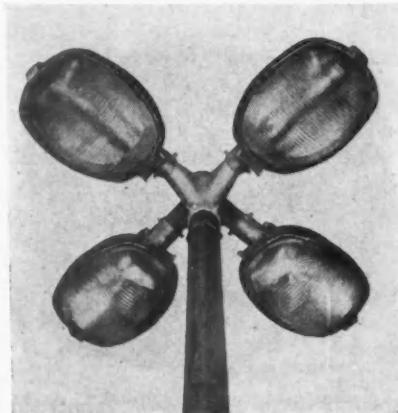
The new effect is available in a number of small and large fiberglass cones.

Write No. P-110 on coupon, pg. 17

Revere multiple luminaire

The new Quad-Oval, made by Revere Electric Manufacturing, 7420 Lehigh Ave., Chicago 48, Ill., is an efficient, yet inexpensive, multiple luminaire for area lighting of parking lots and malls.

Its reflector and glassware combination provides high-intensity, glare-free illumination with the maximum utilization of light. Its



light distribution pattern approximates a square.

The Quad-Oval is offered in two models—each using four mercury lamps.

The No. 5452 Quad-Oval is furnished with four Revere No. 2284 Endovals, using 400-watt mercury lamps.

The No. 5453 Quad-Oval is furnished with four Revere No. 2502-B250 Urbanovals that will accommodate a 100-, 175-, or 250-watt mercury lamp.

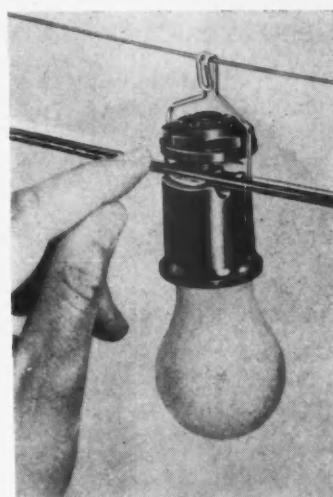
Write No. P-111 on coupon, pg. 17

Leviton lampholder

Leviton Manufacturing Co., Brooklyn 22, N. Y., has added a new candelabra base lampholder to its line of intermediate and medium base pin-type lampholders.

An outstanding feature frees both hands, permitting easy wiring without removing caps.

With the addition of this smaller-base lampholder, rated at 75 watts,



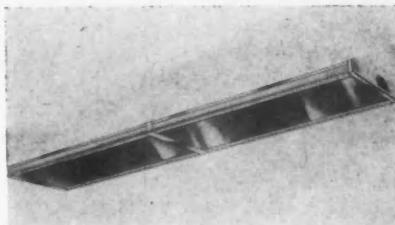
125 volts, Leviton makes available a complete line of sizes, adaptable to every type of use. Other lampholders in the series are the intermediate base, rated at 75 watts, 125 volts, and the medium base type rated at 660 watts, 250 volts. All types are available with or without a detachable zinc-plated wirehook.

Write No. P-112 on coupon, pg. 17

Mitchell Skylark luminaire

Mitchell Lighting Div., Compco Corp., 1800 N. Spaulding Ave., Chicago 47, Ill., is producing a low brightness Skylark luminaire which utilizes a white polystyrene side diffuser and a crystal clear low brightness bottom panel.

The extruded polystyrene panels



are formed so they interlock and no metal framing is required.

The apparent depth of the fixture is $2\frac{1}{8}$ inches. The polystyrene enclosure is hinged from either side of the fixture for easy lamp replacement and fixture cleaning, or can be completely removed — all without the use of any tools.

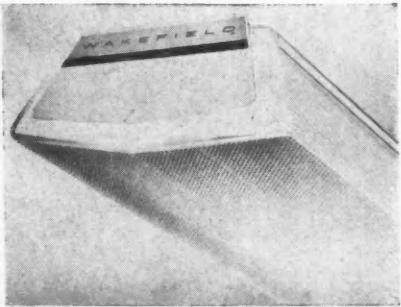
It is available in two- and four-lamp models and four- and eight-foot lengths.

Write No. P-113 on coupon, pg. 17

Wakefield compact fixture

A new compact lighting fixture with a prismatic refractor design has been developed by the Wakefield Co., Vermilion, Ohio.

Trademarked Photometric, the new fixture is designed for both close ceiling and stem mounting. A sliding clamp hanger facilitates stem



mounting. The fixture is available in either four- or eight-foot lengths and measures less than four inches in depth.

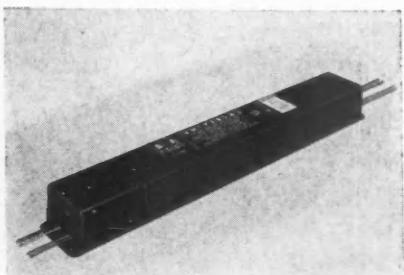
The molded refractor allows the units to be connected in luminous rows with no opaque metal between them to cause distracting contrast.

The prismatic refractor is molded of Styron Verelite, a light stabilized polystyrene developed by the Dow Chemical Co.

Write No. P-114 on coupon, pg. 17

Universal ballast

A low heat rise ballast has been designed for use with 1,500-ma rapid-start lamps. With the introduction of its catalog No. 930-LH, Universal Manufacturing Corp., 29-51 E. Sixth St., Paterson, N. J., has



made this type of ballast available for use in installations and fixtures with restricted heat dissipation.

This ballast can be used with 72- and 96-inch VHO, PG, SHO, T10, and T10J, 1,500-ma rapid-start lamps to provide reliable starting at a low ambient temperature of -20°F . The 930-LH is CBM-certified by ETL only for 96-inch VHO, PG, and SHO lamps at a low starting temperature of 0°F .

Write No. P-115 on coupon, pg. 17

Leader lanterns

Leader Lamp Manufacturing Co., 476 Broome St., New York 13, N. Y., has a new line of five lanterns available.

The lanterns are a combination of castings finished in white, pink,



or black, and hand rubbed with gold or antique gold and white opal glass. They are available both flush and chain suspended.

Model 53F is six inches wide and nine inches long.

Write No. P-116 on coupon, pg. 17

Steber lighting units

Maintenance procedure for cleaning and lamp changing is greatly simplified with the instant electrical disconnect feature of the Lectri-Lok high bay lighting units, manufactured by Steber Div., the Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, Ill.

The reflector lamp and separable socket are removable as a unit for safe and convenient servicing on bench or floor. No tools are required with the disconnect feature.

Reflectors are designed to meet "RLM" specifications for illuminating large industrial interiors at high candlepower levels without objectionable glare. Sizes are available for 400- 700- 1,000-watt color-cor-



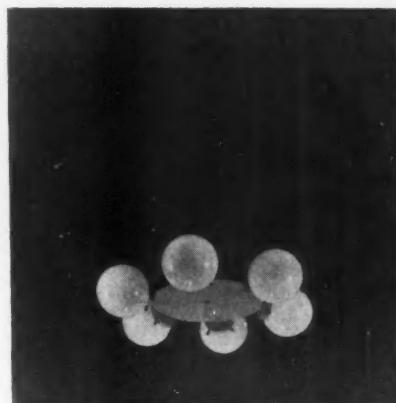
rected mercury vapor lamps and 300- 1,500-watt incandescent lamps. Porcelain enameled reflectors or Anodal finished aluminum reflectors for concentrating or spread distribution can be furnished.

Write No. P-117 on coupon, pg. 17

Habitat chandelier

Habitat, 336 Third Ave., New York 10, N. Y., is producing the romance of Victorian gaslight with a contemporary expression in a new chandelier.

The simple large disk, sprayed and baked white, is encircled by a ring of six six-inch Habitat globes

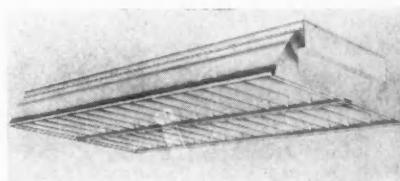


of translucent white glass, casting soft light downward, to all sides, and upward, evenly but indirectly lighting an entire area. The diameter is 25 inches.

Write No. P-118 on coupon, pg. 17

Miller aluminum troffer

Comfortable high footcandle lighting for offices, stores, and public buildings, at lower installed and operating costs, are features claimed for new aluminum troffers for Pow-



LIGHTING for JANUARY, 1961

er Groove lamps, manufactured by the Miller Co., Meriden, Conn.

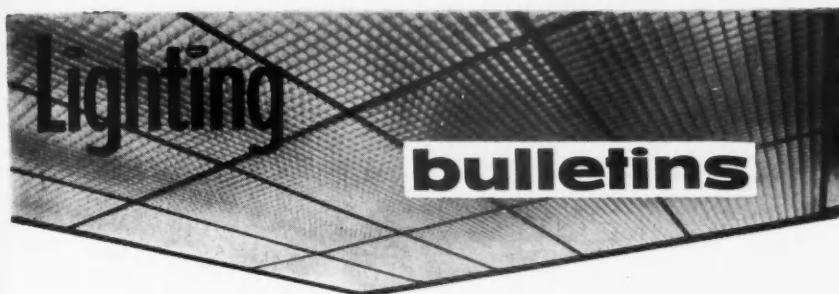
They are described as well-shielded recessed troffers designed to provide maximum brightness control of the extra high-output lamps.

According to Miller engineers, the special low brightness 45 degree length-wise louver combined with

the 41 degree crosswise shielding of the light-controlling reflector provides high footcandle levels with the ultimate in comfort.

The new fixtures are available in single and twin sizes. Normal unit lengths of single troffers are 4, 8, and 16 feet; twin troffers, 4 and 8 feet.

Write No. P-119 on coupon, pg. 17



Gill Glass and Fixture Co., Inc., Philadelphia 34, Pa., has just issued an illustrated 20-page catalog, "Gallery of Lighting Inspirations," featuring an exclusive handcrafted collection of lighting fixtures inspired by the Great Masters. Some of the world famous works of art by Gainsborough, Picasso, Renoir, Degas, Klee, Van Gogh, etc., are featured in this booklet together with the lighting designs which stem from their influence.

Write No. B-120 on coupon, pg. 17

Ultra-Violet Products, Inc., San Gabriel, Calif., manufacturer of Blak-Ray black light lamps, is now offering literature describing black light inspection of printed circuit boards, gear trains, etc.

Write No. B-121 on coupon, pg. 17

A new bulletin just issued by **Vickers, Inc., Electric Products Div.,** 1815 Locust St., St. Louis 3, Mo., provides information on products and systems which can be combined to form a theatrical control "package" of almost any type. Featured control systems include the Mark II, with compact, quiet silicon-controlled rectifier dimmers and infinite preset show card console.

Write No. B-122 on coupon, pg. 17

Universal Manufacturing Corp., 29-51 E. Sixth St., Paterson 4, N.J., has published a 16-page manual of fluorescent lamp ballasts. It covers the types of ballasts available, their operation and care, the Universal service program.

Write No. B-123 on coupon, pg. 17

A comprehensive manual covering nearly all phases of mercury vapor lamps has been published by the **Westinghouse Lamp Div.,** Bloomfield, N.J. The new 28-page technical booklet contains the latest information on nearly all phases of mercury lamps including light output, life ratings, and elec-

trical and physical characteristics. In addition, it describes lamp constructions, designations, color rendition, and necessary auxiliary equipment.

Write No. B-124 on coupon, pg. 17

Nineteen new fixtures have been added to the current lighting catalog of **Emerson-Imperial**, 8100 Florissant, St. Louis 36, Mo. Designed for tract builders and others interested in both quality and economy in a lighting fixture, they are available for every room in the home. Bulletin No. X9881 describes these fixtures in detail, including dimensions and finishes.

Write No. B-125 on coupon, pg. 17

The complete line of molded fiberglass parts for lamps and lighting fixtures is shown in a new folder issued by **Marplex Co.**, 348 Washington St., El Segundo, Calif. Featured are shades, reflectors, bases, diffusers, sheets, cylinders, and co-ordinated metal parts. Outline and dimension sheets for over 50 products are given. Also featured are identification stock numbers, stock colors and patterns, and illustrations of special overlays.

Write No. B-126 on coupon, pg. 17

A booklet, No. SA8865, now available from the **Westinghouse Electric Corp.,** Lighting Div., Edgewater Park, Cleveland, Ohio, describes the company's new lease plan for lighting equipment. The four-page publication lists advantages of leased lighting, tells how the Westinghouse plan operates, and presents a guide for determining rental payments.

Write No. B-127 on coupon, pg. 17

The new 16-page "Star Light" catalog, from Thomas Industries, Inc., 207 E. Broadway, Louisville 2, Ky., contains color illustrations of the new 1961 fixtures ranging from pulldowns and chandeliers, in contemporary and tra-

ditional designs, to convenience lighting fixtures, outdoor post lights, and lanterns.

Write No. B-128 on coupon, pg. 17

Installation

(Continued from page 48)

Kit," the Liteprobe, is being manufactured for Graybar by the Pyramid Instrument Corp., of Lynbrook, New York (manufacturers of the Amprobe Snap-around test instruments). In the development of this product, major emphasis was placed on ease of operation, simplicity of reading, low cost, and high dependability.

Essentially, the Liteprobe is a footcandle meter with a rotary scale having five different lighting-level indications. Scales are lettered A, B, C, D, E. Accompanying the meter are two lighting guides: an easy-reference chart set into the Liteprobe's leather carrying case, and a combination instruction and lighting-level guide.

The contractor need only refer to the chart or the guide to find the correct scale for the lighting condition he is checking. He then sets the Liteprobe to the proper scale to be used (A, B, C, D, E). If the lighting is poor, the needle on the Liteprobe will point to the red area on the selected scale; if the lighting is sufficient, the needle will point green.

"As easy to use as a tube checker, this new concept in light meters should take all the mystery out of footcandles," according to George H. Booth, manager of lamp and specialty lighting sales for Graybar.

Code Rules

(Continued from page 47)

tems. There are several companies making these low-voltage systems and, although the components of the various systems may vary, most of them are similar in operating principle.

Even though inherent safety is incorporated in the low-voltage control systems by reason of low operating voltages (the present range is from six to 24 volts) and low operating currents, the loads controlled by such systems through relays are as great as those controlled by means of conventional switching methods.

Hence, the relays which open

and close against the lamp loads are required to meet the same Code requirements as any other switching device performing a similar function. See Figure 3.

One firm's relays, for instance, are rated at 20 amperes with a-c voltage ratings of either 115 or 277 volts. Another company has relays listed for one horsepower, 15 amperes—125 volts ac, or ten amperes—277 volts ac.

It should be pointed out also at this time that when such relays are mounted in fixture outlet boxes in such a manner that a part of the device is inside of the outlet box—and they frequently are mounted in this fashion—then one wire must be deducted from the number of conductors which otherwise would be permitted in the box by Section 370-6.

One advantage of low-voltage switching, and probably the most obvious one, is the greater safety of operating an electric circuit with a potential of from six to 24 volts instead of a potential of from 120 to 265 volts on the control circuit. This is not to say that the higher voltages are not safe to use when properly insulated and installed.

The point is that the lower voltages can be safely used without taking some of the precautions which are necessary when the higher voltages are used. This results in certain economies which permit lower installation costs where a large number of control stations are to be used.

(Contractors often favor low-voltage switching because it gives them an added selling feature and because of the maintenance factor. Home owners and do-it-yourselfers are less likely to tamper with the more complex low-voltage systems.)

Another advantage of the low-voltage switching method, and perhaps the one most responsible for its widespread success, is that in most of these systems one or more master control and selector stations can be provided to control all or any part of the lights from one or more locations, such as from the master bedroom or from the kitchen.

So-called conventional switching methods, that is, switching

without the use of relays, can be provided with a master station also, but the master switch is limited to the number of lamps which it can control by reason of the load since it opens and closes the load current and not just a small relay operating current. See Figure 4.

Where a considerable load is to be controlled from a single location, more than one master switch or a special selector switch would be needed. This, of course, would result in greater installation costs.

Of course, a magnetic controller can be, and often is, used for controlling heavy lighting loads from a single location, but this method utilizes the relay principle and is not what is referred to here as "conventional" switching. Such magnetic controllers frequently are used for flood lighting, for show window lighting, and similar heavy lighting load control.

Sales ideas

(Continued from page 44)

crease usable office space, and build better public relations.

The campaign is being promoted with sales aids, which include a 12-page tabloid type piece featuring a variety of lighting equipment by ten different manufacturers. The last page of the tabloid includes a coupon that can be clipped and mailed requesting additional information on specific fixtures or a free relighting survey.

Two types of demonstrations are being used in the campaign: the See-Level Comparator and actual lighting equipment. The Comparator is a portable device which has two adjacent sections in which the operator can vary the amount of illumination produced by fluorescent lamps contained within the unit. It is a "do-it-yourself" demonstrator for the customer—he gets into the "act" and selects the amount of light he would like. Complete instruction for the use of the Comparator is furnished to each utility representative.

During the 1959 commercial lighting campaign the company successfully demonstrated lighting equipment, and this will be continued in the present cam-

paign. All divisions have "light-up-and-sell" kits and these will be demonstrated to sell window display lighting. Customers will be shown fluorescent fixtures that will be borrowed from a contractor or distributor. The fixtures can be shown lighted to the customer—it is much more effective than a picture in a catalog. Another method of demonstration is the actual temporary installation of one or more fixtures by a contractor.

Each representative is assigned a quota of 15 Comparator showings, and a quota of 25 demonstrations.

Prize bonuses will be paid following the completion of the campaign. The standings for the prize bonuses will be determined by the points accumulated by each representative based on an established point schedule for Comparator showings, demonstrations, and kilowatts added.

The company emphasizes: sell the benefits and the prospects will buy the lighting.

Luminous panels

(Continued from page 43)

to keep comfort paramount. Tell us why?"

"By equipping the wall with the system indicated in the section drawing we converted the wall into an illusion of scenic distance.

"There are hundreds of windowless rooms, elevator lobbies, long narrow restaurants, and stores that can be transformed by analogous techniques into appealing rather than confining impressions.

"Lighting is architecture today, and at present building costs, efficient use of investment should seek to make the 'inside' space as desirable as the preferred locations with windows.

"Flexibility is gained through circuiting and dimming of lamps, by changing lamp colors, and by mounting applique on the front or back of the diffuser."

In support of his views on this subject, Mr. Riddle has supplied some examples by designers who have handled the luminous vertical surfaces in various successful ways. All of them invite study by specialists seeking better ways of serving their clients. Mr. Rid-

tle offers a word of counsel about technical details.

"Density of the diffusing material, depth of the cavity which acts as a reflector, determine lamp spacing and mounting. Lamps too close to a translucent surface create lines or spots of brightness. We have barely touched the possibilities of this subject, but we encourage others to try. Opportunities are unlimited."

Student building

(Continued from page 41)

Office, meeting room, book store, and barber shop lighting is provided by two-by-four-foot three and four-lamp recessed troffers with dropped plastic panels. All fluorescent fixtures are equipped with individual fuses and radio interference suppressors. The bowling alley lighting is remotely controlled from the game desk and the switching through contactors is arranged to provide 30 footcandles for regular games and 50 footcandles for tournaments.

The browsing and magazine area is lighted by means of down-lights, recessed "star" fixtures and recessed fluorescent troffers. The table tennis room uses four-foot four-lamp troffers with a downlight over the center of each table. The troffers are controlled by wall switches but the down-lights are controlled by low voltage switches at the game desk.

The building was designed by Architects Meem, Holien, Buckley, and Associates. The lighting was designed by Gilbert Lopez and James E. Armstrong of the writer's staff under his supervision.

Machine shop

(Continued from page 61)

light than there actually was, he asked for my recommendations so bids could be obtained.

Fifteen fixtures, installed not less than 9½-feet from the floor, were included in my recommendation. This meant fixtures would have to be installed on unistrut channels suspended 5½ feet from the ceiling, using 800 milliamp lamps; or, channels could be mounted near the ceiling, using 1.5 ampere lamps.

Cost of the higher ampere lamp

installation was approximately 25 per cent higher, and due to limited appropriations, the board decided on the 800 milliamp installation. Their reasoning was based on limited use of the machine shop, and the fact that installation costs would come above appropriations.

Bids submitted included fixtures in all price ranges, and in the end a medium priced fixture was chosen. The board selected the Smithcraft ALS 2-96/800 and awarded the contract to the lowest bidding contractor on that fixture.

The room is 45 x 25½ feet, so fixtures were installed in three rows on 8½-foot centers, with five fixtures per row at a height of 9½ feet. Machinery made the height necessary. Unistrut was suspended on chains.

This system delivered 135 footcandles on installation, and after almost a year of operation, delivers 100 footcandles on the working surfaces. As a result, and because very fine work is not performed here, the school board has decided that the lighting is quite adequate, and plans to equip other rooms with higher illumination in the future.

From this installation, the electrician gained new enthusiasm to recommend higher lighting levels to customers, so when I follow up with the same recommendations, these customers are more easily convinced.

Since this installation, several others of high levels have been made in this area. A library was equipped with 75 footcandles; another with 100 footcandles of illumination. A range of 50 to 125 footcandles was installed in a bank, and several schools were given increased lighting. More installations are coming up soon, with a huge area still to be covered.

Research

(Continued from page 28)

The research center has eight separate departments, including machine design, system design, electronic controls, servo development, instruments, metal cutting and metallurgical laboratories, and research engineering, plus a prototype shop capable of fabricating full scale working models of new product designs. Approx-

mately one-third of the total structure is a high-bay general test section equipped with heavy handling equipment.

Office areas of the center include eight offices, a multi-purpose conference room to seat 100 persons, a research library, fire-proof vault, and a generous lobby-waiting room. Office walls are painted plaster in general, with vinyl plastic wall covering in the public areas, where walls get the most abuse.

Lighting for the offices is accomplished by fluorescent tubes which permit dual lighting levels. Maximum light level of 150 foot-candles can be provided by this system. The conference room, which may be divided to accommodate various size groups or to separate into a display stage and seating area, is equipped with dimmer-controlled illumination.

Lighting is also effectively employed in the exterior of the building, where at night, letters forming the name of the company are back-lighted, and the company's trade-mark in plastic illuminated to dramatically identify the structure in the evening.

Electrical power for the building is supplied by a bus-way system at 480 volts, three-phase in the factory area, while offices have an underfloor electrical duct system for maximum flexibility in future changes.

The fixtures utilized in the lobby area are Wakefield units. Gibson Ortho 88 units were used in the high bay areas.

Architect for the new research center was Joseph Ceruti and Associates of Cleveland. Lighting engineering design was furnished by Electro Lighting Corp., Stylist.

Home lighting

(Continued from page 27)

areas; dining room chandeliers; ceiling fixtures for all rooms; and other types. A complete range of units, from modern to traditional, is on display.

Steiner Electric has made provision to help contractors, builders, and homeowners who wish to select the lighting equipment from blueprints and is able to give guidance to help proper lighting selection. Special "desk top" display panels fold from the walls

to form a surface on which to unfold prints.

Steiner Electric has developed unique methods for mounting both ceiling and wall fixtures, as shown in the illustrations. They enable very fast installation and removal of all displayed fixtures.

Layout of the display room enables Samuel Solomon, Steiner Electric vice-president, to view the entire floor in order to ensure fast customer service. Only obstructed view is the city counter and this is monitored in Solomon's office by closed-circuit television.

Planning for the new showroom began after participation in the Academy of Lighting Arts, a program designed to train all segments of the lighting industry in fundamentals of residential lighting.

NEMA program

(Continued from page 25)

it must enable objects on the roadway to be seen within limits of safety."

Mr. Edman also said that the present "American Standard Recommended Practice for Roadway Lighting" does not prescribe adequate lighting for our present needs, but warned that any upward change in light levels will meet with strenuous objections from some quarters because of the lack of sufficient scientific data to help convince and support engineers and officials responsible for the design of roadways and for the appropriation of necessary funds.

This situation is further complicated, he stated, by the public's

lack of knowledge of the benefits to be derived from well-planned roadway lighting.

Mr. Edman declared that if we were to light our roadways to levels at least 50 per cent higher than the present recommended practice, "we still would be conservative." Users, he said, will gladly pay the small additional charge "if it is possible to increase illumination 50 per cent for less than 25 per cent added cost."

Frederick J. Woodbridge, of the architectural firm of Adams and Woodbridge and president of the New York chapter of the American Institute of Architects, urged manufacturers of street lighting equipment to give consideration to making their products pleasing as well as functional, and expressed concern that too much emphasis may be placed on functional designs.

He also called attention to the pleasing effects which can be achieved in the floodlighting of building exteriors, monuments, etc., and mentioned that much importance is attached to this type of lighting in Europe and South America.

Maintenance

(Continued from page 24)

In only one part of the building does the lighting installation differ from the rest. This is the system operating office on an upper floor, which is the very nerve center of the company's electrical operations. On this unusual operations board are diagrammed all company lines and sub-stations throughout WWP's 26,000 square

mile service area. Operators are on duty here 24 hours a day, seven days a week, every day of the year.

Ceiling illumination here is provided, again, by four-foot fluorescent tubes. However, vertical lighting units are arranged in a circular pattern to suit the lighting requirements of the board which has 150 footcandles on the vertical panel. The horizontal illumination level is approximately the same as in other parts of the building.

An unusual feature of this room is the emergency power provision in case of power failure. The emergency power source is batteries with converters to supply all power and lighting needs of the room.

Where this arrangement differs from other emergency systems is in its regular daily use of the same lighting and power facilities that will be used for an emergency.

In this way, the operators know that the equipment will work in case of an emergency, since they have been operating it every day.

In contrast, the more usual type of emergency installation requires completely separate lighting and power facilities connected directly and permanently to the power sources. In case of emergency here, the entire system might be out of use for several years before it would be needed. Under such conditions, the system could quite possibly fail when needed, unless repeated tests are made to assure that it is operating.

This possibility is avoided with the WWP installation.



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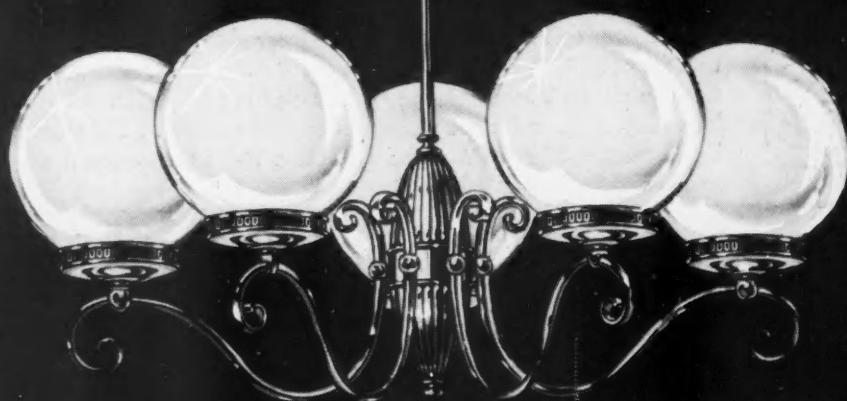
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